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ABSTRACT

This volume contains 30 indicators that collectively describe the condition of postsecondary education from a variety of perspectives. The indicators have been derived from studies conducted by the Center for Education Statistics and from other surveys conducted both within and outside the Federal Government. Indicators have been grouped under the headings of student progression and outcomes; context; and resources. Outcome indicators describe student access and participation; persistence; educational attainment and curriculum; continuation to advanced levels; and economic outcomes. Context indicators provide measures of the changing characteristics of higher education, both in terms of its institutions and its students (race/ethnicity and age). Resource indicators focus on fiscal resources (institutional revenues, expenditures per student, and financial aid) and human resources (faculty salaries and teaching workloads). Also included are measures of two outputs of postsecondary education: degrees and research. For postsecondary education, new indicators include the following: (1) net cost of college attendance; (2) timing of entry to college; (3) baccalaureate field of study, by sex; (4) starting salaries of college graduates; and (5) time allocation and workload of full-time faculty. Among the key issues discussed in the overview are minorities and women in higher education, and access, persistence, and completion rates. (MLF)

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Volume 2

Postsecondary Education

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U.S. Department of Education
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EA 022 982

THE CONDITION OF EDUCATION
1991

Volume 2
Postsecondary Education

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National Center for Education Statistics

"The purpose of the Center shall be to collect, and analyze, and disseminate statistics and other data related to education in the United States and in other nations."—Section 406(b) on the General Education Provisions Act, as amended (20 U.S.C. 1221e–1).

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The National Center for Education Statistics (NCES) gathers and publishes information on the status and progress of education in the United States. The federal authorization for these activities (with antecedents to 1867) states that the Center will "collect, collate, and from time to time, report full and complete statistics on the condition of education in the United States." The Hawkins-Stafford Elementary and Secondary School Improvement Amendments of 1988 (Public Law 100-297) mandates an annual statistical report on the subject from the Commissioner of Education Statistics. This 1991 edition of the *Condition of Education* responds to the requirements of law.

The condition of education "indicators"—key data that measure the health of education, monitor important developments, and show trends in major aspects of education—are published in separate volumes; one for elementary and secondary education and one for postsecondary education. Both volumes include the text, tables, and charts for each indicator plus the technical supporting data, supplemental information, and data sources.

The indicators presented in these volumes have been developed using data from studies carried out by NCES as well as from surveys conducted elsewhere, both within and outside the federal government. Although indicators may be simple statistics, more often they are analyses—examining relationships; showing changes over time; comparing or contrasting subpopulations, regions, or states; or studying characteristics of students from different backgrounds. Data used for these indicators are the most valid and representative education statistics available in the United States today for the subjects and issues with which they deal.

The indicators portrayed here are selective. No more than 60 indicators are presented in each year's two-volume report. By contrast, the Center's other major annual compendium, *The Digest of Education Statistics*, included more than 380 statistical tables, plus figures and appendices in its 1990 edition. These indicators represent a consensus of professional judgment on the most significant national measures of the condition and progress of education at this time, but tempered, necessarily, by the availability of current and valid information. They reflect a basic core that can be repeated with updated information every year, supplemented by a more limited set of indicators based on infrequent or one-time studies.

This year, for elementary and secondary education, new indicators include:
- High school completion rates at ages 19, 25, and 29;
- Employment rates of recent high school graduates and dropouts;

- Mathematics and science course-taking patterns among high school students;
- Certification and education of full-time public secondary school teachers;
- International comparisons of public expenditures for elementary and secondary education.

For postsecondary education, new indicators include:

- Net cost of college attendance;
- Timing of entry to college;
- Baccalaureate field of study, by sex;
- Starting salaries of college graduates;
- Time allocation and workload of full-time faculty.

The concept of education indicators has gained the attention of the U.S. Congress, national organizations, states, and localities. To assist the Center in conceptualizing and developing a set of education indicators most useful to policymakers and researchers, the Congress mandated that NCES convene a special study panel of experts to "make recommendations concerning the determination of education indicators for study and report" (Public Law 100–297). The report of the panel will be ready for Congress in the summer of 1991. Its recommendations could result in structural or contents changes for the 1992 and subsequent editions of *The Condition.*

In developing indicators, the Center has participated in a widening national discussion about the types of measures that are useful in monitoring the progress of education. The adoption of a set of National Education Goals by the President and the Nation's Governors was accompanied by a commitment for annual reporting on progress toward the goals. The National Education Goals Panel, currently chaired by Governor Roy Romer of Colorado, is charged to make recommendations in September 1991 for appropriate measures, or indicators, by which the Nation can monitor the goals. A number of local education agencies and states, such as California and Connecticut, are monitoring their own reform agendas through education indicators. Also, at the national level, the Council of Chief State School Officers seeks to have consistent reporting by the States on a number of indicators that it has identified.

The utility of *The Condition* should continue to increase as more diverse, high quality data become available, especially as new time series can be constructed. Elementary and secondary education data will be enhanced by revisions in the basic data collected about public schools in the Common Core of Data survey. Two data systems recently begun at the Center are the basis for new indicators in the elementary and secondary volume: the Schools and Staffing Survey (SASS), which covers both public and private schools, and the National Education Longitudinal Study of 1988.

Data collection from more postsecondary institutions than the traditional accredited 2- and 4-year colleges and universities has already begun. This expanded system, called the Integrated Postsecondary Education Data System, also includes information from nonaccredited institutions whether they are public or private, 4-year, 2-year, or less-than-2-year. Information from this broader group of institutions will provide a much clearer picture of what is happening in the full scope of postsecondary education. Two other data systems recently begun at the Center are the basis for new indicators in the postsecondary volume: the National Postsecondary Student Aid Study (NPSAS) and the National Survey of Postsecondary Faculty (NSOPF).

Finally, the format of *The Condition of Education* is designed to present statistical information in an accessible manner for a general audience. The essence of each indicator is on two facing pages. On the first page, the results are highlighted and a table presents the data. On the second page one or more charts give a graphic representation to the major implications of the indicator. An innovation of this edition is the addition of color to the charts. In addition, there is a discussion preceding each group of indicators relating them to one another. As in previous years, additional tables supporting each indicator are placed in an appendix.

I hope you find the material helpful and invite you to send us comments on how to make future editions even more useful.

Emerson J. Elliott
Acting Commissioner of
Education Statistics

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This volume contains 30 indicators.[1] Collectively, they describe the condition of postsecondary education from a variety of perspectives. Each was selected to shed light on some important issue in postsecondary education for which current data are available.

This overview summarizes some major aspects of the potential entrants to postsecondary education (that is, high school graduates), reviews the structure of this volume, and examines evidence from the indicators about certain topics in postsecondary education (see Crosscutting Issues, page 4).

Secondary students

The condition of postsecondary education cannot be judged in isolation from the condition of elementary and secondary education. After all, the preparation of the students who enter the colleges and universities of our Nation depends in large part on the quality of their elementary and secondary education. There are some encouraging signs.[2] On the bright side:

- High school graduation rates among blacks have risen dramatically over the past 25 years. In 1965 only 50 percent of 25- to 29-year-old blacks were high school graduates. In 1990, 82 percent of this age group had graduated—less than 5 percentage points lower than whites (supplemental table 2:7-5).
- Average college entrance examination scores (SAT) of high school students applying to college began rising in the early 1980s, after having fallen for many years. Thirty-nine percent of high school graduates took the SAT in 1990, up from 33 percent in 1980, and their average total score was 900, up 10 points from 1980 (*Indicator 1:9* and supplemental table 1:9-3).

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[1] Not all indicators published in the 1990 *Condition of Education* are in this volume. Indicators for which no new data are available are generally not published (*Indicator 2:24* is an exception). In this way, room is created for other indicators for which new data has become available. The index provides a reference for indicators in the current and previous editions of the *Condition of Education.*

[2] These observations are based primarily on *The Condition of Education, 1991, Volume 1, Elementary and Secondary Education.*

- High school students are taking more academic courses, especially in mathematics and science. Members of the high school class of 1987 took 2.97 years of mathematics and 2.59 years of science, in each case up .40 years from the high school class of 1982 (1990 *Condition of Education, Volume 1, Indicator 1:13*). Among 1987 graduates, 47 percent had taken Algebra II, up from 35 percent in 1982; 45 percent had taken Chemistry, up from 31 percent in 1982 (1991 *Indicator 1:14*). A similar improvement was shown in foreign languages.

But not all the news is positive:

- High school graduation rates among Hispanics 25–29 years old are low—around 60 percent—and did not improve over the decade of the 1980s (supplemental table 2:7-5).[3]

- Those without a high school diploma face an economy and society that is increasingly complex, technological, and information-driven, and yet, only 86 percent of 25- to 29-year-olds have completed high school. With less than a high school education, nearly 15 percent will be at a substantial disadvantage. Among those who completed high school by ages 25 to 29, a substantial fraction did so through alternate routes such as the GED.

High school graduates make up the "pool" of candidates for postsecondary education.[4] Among whites, the percentage finishing high school has been stable since 1976. However, among blacks, the percentage finishing high school has increased substantially and the population of blacks has grown somewhat faster than that of whites. Therefore, blacks make up an increasing proportion of the "pool" of candidates for postsecondary education. Given recent improvements in SAT scores and in NAEP scores for 17-year-old blacks, these cohorts appear better prepared for college level studies than those in the recent past.

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[3] A substantial fraction of Hispanics 25 to 29 years old are recent immigrants to the U.S. and have little education. Thus, high school graduation rates for Hispanics as a whole combine the lower averages of the foreign-born Hispanics with the higher averages of the U.S.-born Hispanics. It is not known whether high school graduation rates have increased for U.S.-born Hispanics.

[4] Although finishing high school is not a prerequisite for admission to many colleges, particularly 2-year colleges, only 2.4 percent of undergraduates have not finished high school (U.S. Department of Education, National Center for Education Statistics, *Profile of Undergraduates in American Postsecondary Institutions*, December 1989).

Structure of The Condition of Postsecondary Education

A quick tour of the volume may help the reader make the best use of it. The core of the volume is the 30 postsecondary indicators. Each indicator is presented on two pages. On the first page are three components: (1) a short paragraph providing the justification for the indicator, (2) bullets summarizing the main results, and (3) a table with the data. On the second page, one or more charts graphically illustrate some of the results. The 30 indicators are organized into 3 parts and 10 sections. The three parts are (I) Student Progression and Outcomes, (II) Context, and (III) Resources.

Student Progression and Outcomes. In the first part, five sections describe student progression through postsecondary education—the education pipeline. These five sections are designed to approximate the progression of students from first entry into college to entry into the labor market. Section A, Access and Participation, includes measures of the proportions of high school graduates who started college immediately, and those who delayed doing so. It also includes two indicators of access from the perspective of college cost and family income. Section B, Persistence, includes a measure of continuous attendance from one year to the next among college students. Persistent attendance is a prerequisite for progress, and progress is a prerequisite for completion. For those who complete college, a measure of the total time between high school and college graduation is included.

Section C, Educational Attainment and Curriculum, includes measures of college completion in recent cohorts compared to the past and to other countries. This section also describes the changing distribution of majors chosen by college graduates. Section D, Continuation to Advanced Levels, is directed to graduate education. It includes a measure of the general learned abilities of students applying to graduate school, a measure of the proportion of recent college graduates enrolling in graduate school, a measure of the fields chosen by graduate students and a measure of the time students take to complete a doctor's degree. Section E, Economic Outcomes, the final section of the five describing the pipeline of higher education, includes two economic outcomes: employment and earnings. The indicators demonstrate the relationship of these outcomes to the amount of postsecondary education an individual has invested in and to their chosen major field.

Context. In the second part on context, the two sections, G, Size and Growth, and H, Student Characteristics, provide measures of the changing character of higher education both in terms of its institutions (2- v. 4-year, public v. private) and its students (race/ethnicity, age, and so forth). These characteristics only partially describe the changing context for learning and instruction in higher education. The reference group for these indicators is all students enrolled in higher education.

Resources. In the third part on Resources, the final two sections, I, Fiscal Characteristics, and J, Faculty, provide measures related to the resources, both human and financial, used in higher education.

Comparisons. Some indicators inform about progress of the student or adult population, whereas others inform about the educational system as a whole. Almost all the indicators in sections A through E have clear population reference groups. These include: (1) families with children approaching college age (*Indicator 2:3*), (2) high school graduates (*Indicators 2:1* and *2:7*), (3) those enrolled in college (*Indicators 2:2, 2:4,* and *2:5*) and (4) college graduates (*Indicators 2:6, 2:9, 2:14,* and *2:15,* for example). The last section in Part I, Section F, Output and Productivity of Colleges and Universities, includes measures of two outputs of postsecondary education: degrees and research. Indicators based on degrees conferred by colleges and universities (such as *Indicator 2:20*) usually do not have a clear population reference group. In these cases, the primary reference is the number of degrees awarded in an earlier year. This is also the reference for *Indicators 2:11* and *2:12* that present information on degrees awarded by race/ethnicity and sex. Without a clear population reference group these measures provide only indirect evidence of the flow through the pipeline, and are more appropriately viewed as measures of the output of the higher education system.

Crosscutting Issues

The remainder of this overview discusses several key issues which cut across indicators and sections of the report: (1) access, persistence, and completion rates, (2) minorities in higher education, (3) women in higher education, (4) mathematics, science, and engineering, (5) the cost of higher education, and (6) the financial returns to a college education.

Access, Persistence, and Completion Rates

Has the college completion rate changed over the 1970s and 1980s? The answer to this question is complicated by many factors, which have spurred some debate. One way to simplify the discussion is to divide the larger question into component questions.

Of high school graduates, what proportion starts college in the year they graduate? In October of 1989, 58 percent of the males who graduated from high school in 1989 started college; among women it was 62 percent (supplemental table 2:1-2). The proportion of men starting college in the October following high school graduation fell during the first half of the seventies: the rate was 60 percent in 1968 and 50 percent in 1975. Recently it has rebounded. Among women It was generally below 50 percent before 1980 and above 50 percent since 1980.

Of those who start college, what proportion finishes within 5 years of starting? The proportion has fallen. Among members of the high school class of 1972 who started college in the fall of 1972, either at 2-year or 4-year institutions, either full-time or part-time, 33 percent had graduated with a baccalaureate degree within 4.5 years of starting. Among members of the high school class of 1980, the comparable rate was 22 percent.[5] Turning the question around, among college graduates in 1986, 66 percent took 5 or fewer years from high school graduation, down from 71 percent among 1977 graduates (*Indicator 2:6*).

What proportion of high school graduates finishes college? The trends are different for men and women. In 1990, among men 25-29 years old who had finished high school, 28 percent had also finished 4 or more years of college (*Indicator 2:7*). This was 22 percent in 1965 and increased to a peak of 32 percent in 1976. The rate then declined gradually. In 1990, 26 percent of women high school graduates 25-29 years old had finished 4 or more years of college. Between 1965 and 1977, this rate increased from 14 to 25 percent and has changed little since 1977. An alternative approach to measuring the college completion rate of an age group, such as 25- to 29-year-olds, is to measure the college completion rate of a high school graduating class a given number of years after graduation. Among members of the high school graduating class of 1972, 25 percent had completed a baccalaureate degree by the end of 1978, 6.5 years after graduation. Among members of the class of 1980, 20 percent had a baccalaureate degree by the end of 1986.[6]

In summary, there was a decline between 1976 and 1981 in college completion rates among male high school graduates and little discernable trend between 1981 and 1990. Among women it has not declined. Young people are taking longer to finish college, making it more difficult to compare attainment rates over time. To the extent that "on-time" completion of college is important for bringing the skills and knowledge acquired in college to the economy and society as quickly as possible, the trend appears to be in a negative direction. But to the extent that the Nation values eventual completion of a college degree, the figures seen can be interpreted more optimistically—young people appear to be persisting to completion in the face of higher costs and more part-time attendance.

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[5] Knepper, Paula. *Trends in Postsecondary Credit Production*, U.S. Department of Education, National Center for Education Statistics, 1990.

[6] Carroll, Dennis. "Trends in Postsecondary Persistence," paper prepared for presentation at the 1990 meetings of the American Educational Research Association, April 1990.

Minorities in Higher Education

Blacks have made great strides in education. Much of the increased economic prosperity of blacks relative to whites from 1940 to 1980 has been attributed to the increase in the amount and quality of their education.[7] The gains made by blacks in education in the 1980s, however, were uneven. Blacks continued to make gains in elementary and secondary education. For example, high school completion rates among blacks continued to increase between 1980 and 1989—the fraction of blacks 16-24 years old not enrolled in high school and who had not finished high school fell from 19 to 14 percent between 1980 and 1989.[8]

In recent years, blacks have regained some of what they lost in postsecondary education between 1977 and 1983. In 1977, 48 percent of blacks graduating from high school enrolled in college that fall (*Indicator 2:1*). That rate fell to 39 percent in 1983 and rebounded to 50 percent by 1988.[9] While the 1977 rate for blacks was not significantly below the rate for whites, by 1983 this difference had increased to 16 percentage points. In 1988, the difference in this measure of immediate entry to college was 9 percentage points. Black high school graduates are more likely than whites to delay starting postsecondary education. Among high school graduates in 1982 who had started college before 1986, 30 percent of blacks in contrast to 20 percent of whites delayed their start.

Differences between whites and blacks in the fields they chose to study for their baccalaureate degrees have largely disappeared. In 1977, blacks were less likely to major in the natural sciences and engineering and more likely to choose the social sciences and education (*Indicator 2:9)* than whites. In 1989, the field distribution for blacks was largely similar to that for whites. Blacks were less likely than whites to choose education as a major and more likely than whites to choose business or other technical/professional fields.

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[7] See U.S. Commission on Civil Rights, *The Economic Progress of Black Men in America*, Washington, D.C.: U.S. Government Printing Office, 1986; and Smith, James P. and Finis R. Welch, *Closing the Gap: Forty Years of Progress*, Santa Monica, CA: The Rand Corporation, 1986.

[8] Phillip Kaufman and Mary J. Frase, *Dropout Rates in the United States: 1989*, U.S. Department of Education, September 1990.

[9] See p. 18; based on a 3-year average of the rates for 1987, 1988, and 1989 to remove the wide fluctuations in the yearly rates.

Role models are important for young people who are developing their expectations and aspirations for their future roles as adults. Teachers are often looked to as role models and mentors. Thus, as fewer blacks choose education as a career, the already scarce supply of black teachers will be exacerbated and fewer children will have black teachers as role models and mentors.

Blacks are less likely than whites to continue on to graduate school immediately after receiving their baccalaureate degrees (supplemental table 2:14-1). This may reflect the greater concentration of blacks than whites in education at the graduate level (*Indicator 2:15*). Doctoral students in education take more total time between completion of the baccalaureate and doctoral degrees than students in other fields (*Indicator 2:16*), much of which may be due to a period of working in the field prior to starting their graduate education. The number of master's and doctor's degrees awarded to blacks in 1989 was down 33 and 15 percent, respectively, from 1977 levels (*Indicator 2:11*). However, most of this downturn can be attributed to blacks leaving education as a field (*Indicator 2:15*). So, the downturn in advanced degrees awarded to blacks may be as much due to changes in the fields blacks chose to study as it is to other factors.

Among Hispanics 25-29 years old, the high school graduation rate in 1990 was 59 percent, far below the rate for blacks or whites (supplemental table 2:7-5). Despite this lower high school graduation rate, measures of Hispanic high school graduates' participation in postsecondary education generally are similar to measures for blacks. For example, on average between 1985 and 1989, 48 percent of Hispanics enrolled in college following high school graduation in contrast to 46 percent of blacks and 57 percent of whites (supplemental table 2:1-2). Once enrolled as undergraduates, an estimated 82 percent of Hispanic students re-enroll the following year, about the same as for black undergraduates (supplemental table 2:5-2). Among those continuing, 77 percent of Hispanics had progressed to a higher grade level in contrast to 87 percent of blacks. In 1990, among Hispanics 25-29 years old who had finished high school, 14 percent had finished 4 or more years of college, similar to the 16 percent rate among blacks, but far below the 28 percent of whites (*Indicator 2:7*). In 1989, the distribution of major fields of the baccalaureate degrees awarded to Hispanics were generally similar to that of whites, but there were some differences. Hispanics were more likely to major in the humanities and social sciences and less likely to major in education than whites (*Indicator 2:9*). The number of first-professional and master's degrees awarded to Hispanics was larger in 1989 than in 1987. It is not clear, however, whether the number has kept pace with the growth in the Hispanic population and in the number of Hispanic college students (supplemental table 2:11-2).

Women in Higher Education

Traditionally, women have been as likely as men to finish high school, but less likely to go on to college. However, by the late 1980s, women had closed much of the gap in higher education. For example, since 1975 the rates at which men and women have enrolled in college following high school graduation have been very similar (*Indicator 2:1*). In 1975, of high school graduates 25-29 years old, 23 percent of women and 30 percent of men had finished 4 years of college. In 1990, the gap was 2 percentage points—26 percent of women and 28 percent of men had finished 4 years of college. Differences in higher education attainment between men and women are very small (*Indicator 2:7*).

An area where substantial differences remain is field of study (*Indicator 2:10*). In 1989, men were five times as likely as women to receive a baccalaureate degree in computer sciences or engineering; on the other hand, women were three times as likely as men to receive a baccalaureate degree in education. The choice of fields may account for part of the gap between men and women in starting salaries for recent college graduates (supplemental table 2:17-1), because education majors average the lowest starting salaries and engineering and computer science majors, the highest.

The labor force participation rates of women rose steadily throughout the 1970s and 1980s for those with a high school education or better. By 1990, of women 25–34 years old who completed college, the percentage employed was about 10 percentage points lower than for men—83 versus 93 percent, in contrast to a 27 point gap in 1975 (*Indicator 2:18*). Women college graduates shared in the growth in earnings of all college graduates in the 1980s. Although women college graduates earn less on average than men college graduates, the earnings premium women enjoy over their counterparts with only a high school education is greater than that for men (*Indicator 2:19*).

Mathematics, Science, and Engineering

There are at least two reasons why we as a Nation are particularly concerned with mathematics, science, and engineering education. First, since World War II the United States has been a leader in producing new science and engineering knowledge and in translating this knowledge into new technologies that increase worker productivity and generally improve the quality of life. Second, with the inevitable increase in the sophistication of the technologies used in the workplace (particularly computers and information retrieval), it is increasingly important for workers to be technologically literate. Jobs that used to require a narrow range of skills now often demand an increasingly wide range of skills, particularly problem-solving skills. The importance of science and mathematics has been underscored by the President and the Governors who have set a goal that "by the year 2000, U.S. students will be first in the world in science and mathematics achievement."

High school preparation to study science and mathematics at the collegiate level is very important. A 1981 international comparison of the achievement of 17-year-olds concluded that not only were U.S. students less likely to take advanced mathematics and science courses but also the achievement of those who did take the advanced courses compared poorly to their counterparts in other countries.[10] It is possible that U.S. students have improved their performance since this study was conducted. High school graduates in 1987 took more mathematics and science courses than did graduates in 1982. Not only did graduates in 1987 take more credits in mathematics and science, but they were less likely to take remedial or below-grade-level math, and more likely to take algebra II, geometry, chemistry, and other advanced mathematics and science courses (*Volume 1, Indicator 1:14*).

In the United States, the general rate of participation and completion of higher education for both sexes is much greater than in the other major industrialized economies of the world. However, in the U.S., the number of baccalaureate degrees in engineering as a percent of 22-year-olds is one-half the corresponding rate in Japan and only slightly higher than the rate in Germany. On the other hand, the number of baccalaureate degrees in the natural sciences as a percent of 22-year-olds is twice the corresponding rates in both Japan and Germany (*Indicator 2:8*).

The number of baccalaureate degrees awarded in engineering increased during both the 1970s and 1980s. In computer and information sciences, the number awarded more than tripled between 1980 and 1988, an indication of the responsiveness of undergraduates to the demand created by the explosion of computer use in the U.S. during the 1980s.[11] The number of graduate degrees awarded in computer science also increased, but not at the same rate as baccalaureate degrees. Between 1977 and 1989, graduate engineering degrees awarded to American students increased by 40 percent and 36 percent at the master's and doctor's levels, respectively (supplemental table 2:21-2). Engineering has become more oriented toward science (theoretical) and less toward design (applied) and the tools are becoming more sophisticated, requiring more engineers with graduate education.

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[10] McKnight, C.C., F.J. Crosswhite, J.A. Dossey, E. Kifer, J.O. Swafford, K.J. Travers, and T.J. Cooney, *The Underachieving Curriculum: Assessing US School Mathematics from an International Perspective* (Champaign, Il.: Stipes Publishing Co.), 1987. At younger ages, a 1988 international comparison of the achievement of 13-year-olds also concluded that U.S. students do poorly in mathematics and science (*Volume 1, Indicator 1:8*).

[11] *The Condition of Education, 1990, Volume 2*, supplemental table 2:17-1.

At the same time, the share of engineering doctorates awarded to non-U.S. citizens by U.S. universities increased from 33 percent in 1977 to 48 percent in 1989 (*Indicator 2:21*). During this period, non-U.S. citizens earned 68 percent of the increased number of engineering doctoral degrees awarded. This is an indication that U.S. graduate programs in engineering are among the best in the world, however, much of the new talent these programs create may not stay in the U.S. (supplemental table 2:21-5).

The natural sciences have not experienced the same growth as engineering and computer sciences. In 1980, about 80,000 baccalaureate degrees were awarded in both the natural sciences and in engineering and computer sciences. In 1988, the number awarded in the natural sciences declined somewhat whereas the number in engineering and computer sciences increased substantially. Within the natural sciences, the number of degrees in both the life and physical sciences decreased, whereas the number of degrees in mathematics increased after having experienced a major decline during the 1970s.[12]

Although the study of the natural sciences accounts for a relatively small share of all baccalaureate degrees, they may attract some of the most talented college students. Undergraduates majoring in the natural sciences are among the most likely to complete the degree in 4 years (supplemental table 2:6-1). These graduates are also the most likely to continue to graduate school—in 1986 the rate was 33 percent (*Indicator 2:14*). However, in 1989, the number of master's and doctor's degrees awarded to American students in the life sciences, physical sciences, and mathematics was lower than the number awarded in 1977 (supplemental table 2:21-2).

The Cost of Higher Education

Colleges and universities increasingly depend on tuition and fees for revenue. Between 1980 and 1987, at public institutions the share of revenue generated by tuition and fees increased from 15 to 19 percent; at private institutions, the share increased from 52 to 56 percent (supplemental table 2:26-2). During this period, at public universities tuition charges per full-time-equivalent (FTE) student had increased 27 percent (in constant dollars); at other public 4-year universities, 23 percent; and at private universities 34 percent (supplemental table 2:27-3).

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[12] *The Condition of Education, 1990, Volume 2*, supplemental table 2:17-1.

As tuition rose between 1980 and 1987, expenditures per FTE student for instruction also rose faster than inflation.[13] At public universities, expenditures per FTE for instruction increased 9 percent (in constant dollars). At other public 4-year colleges, expenditures per FTE student for instruction increased 5 percent (supplemental table 2:27-1). At private universities, expenditures per FTE for instruction increased 26 percent (supplemental table 2:27-2).

Higher education institutions also faced increasing costs of the goods and services that they purchased during the 1980s. For example, in 1988 average faculty salaries were between 13 and 15 percent higher at public institutions than they had been in 1981 (in constant dollars), and at private institutions, between 15 and 17 percent higher (supplemental table 2:30-5).[14]

During the 1980s, students and their families faced increasing costs of college education. Whereas increases in median family income stayed only slightly ahead of inflation, charges for tuition, room, and board rose 27 percent at public institutions and 46 percent at private institutions in constant dollars (*Indicator 2:3*). However, most students receive financial aid to offset some of the cost of college attendance (*Indicator 2:28*). Among students from families with incomes less than $30,000 who were attending public 4-year colleges during the 1986-87 academic year, between one-half and two-thirds of the total cost of attendance was met by financial aid; among those attending private 4-year institutions, between 60 and 70 percent of the total cost was met by financial aid (*Indicator 2:4*).

The average charge for tuition and fees is the price paid by a student who does not receive financial aid. However, in 1986-87 most students received financial aid (*Indicator 2:28*). A considerable portion of financial aid comes from the college as opposed to an external source such as the federal or state government. Colleges and universities use their revenues to provide financial aid, in effect reducing the price to students who cannot afford the full price or who the college wants to attract for other reasons. At public universities, between 1981 and 1987, expenditures per

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[13] As measured by the Higher Education Price Index.

[14] The Higher Education Price Index rose 10.5 percent more than the Consumer Price Index between 1981 and 1988 (*Digest of Education Statistics, 1990*, Table 34).

FTE student for scholarships and fellowships increased 20 percent (in constant dollars); at other public 4-year colleges, only 2 percent (supplemental table 2:27-1). At public 4-year institutions, 17 percent of undergraduates receive institutional aid (supplemental table 2:28-1). At private universities, expenditures per FTE student for scholarships and fellowships increased 42 percent. At private institutions, 51 percent of undergraduates received institutional aid during 1986-87.

In addition, outside sources of financial aid help pay the increasing tuition. At public 4-year institutions, 42 percent received federal financial aid during the 1986-87 academic year (supplemental table 2:28-1). At private 4-year institutions, 55 percent received federal financial aid.

Returns to a College Education

The early 1970s were characterized by a fall in the earnings of college graduates relative to those of high school graduates. This led some analysts to suggest Americans were over-educated.[15] However, in the 1980s this trend sharply reversed. The relative earnings of college graduates, both men and women, increased remarkably. In 1975, white male college graduates 25–34 years old earned only 18 percent more than those with only a high school education, but in 1989, they earned 45 percent more. Although women earn less than men, they receive a higher economic return to a college education. In 1989, white women with 4 or more years of college earned 89 percent more than white women with only 12 years of school, up from 74 percent in 1975. Among black women the premiums were even larger (*Indicator 2:19*). These large earnings premiums for college graduates encourage more young people to enroll in college, pay the sometimes high price of tuition, and complete a baccalaureate degree.

Conclusion

In the preceding discussion we have covered only some of the issues treated by the 30 indicators in this volume. The reader is encouraged to read the overview to each subsection for discussion of other issues, to peruse the indicators of interest, and to refer to the supplementary tables for additional details.

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[15] Freeman, Richard. *The Over-educated American.* Basic Books, 1975.

Indicators of Postsecondary Education

I. Student Progression and Outcomes

A. Access and Participation

Wide access to postsecondary education for individuals from all parts of our society has been a national objective for many years. Actual participation is one indicator of the accessibility of postsecondary education to today's young people. The traditional route to higher education is to enroll in the fall following high school graduation. The proportion of high school graduates that enroll in college the October following graduation measures this phenomenon (*Indicator 2:1*). However, some young people take time out from school to earn money, to travel, and to provide themselves with time to decide what they want to study and to develop the motivation to do so. The proportion of 1982 high school graduates starting postsecondary education within 4.5 years of graduation but not enrolling in the fall following graduation measures this phenomenon (*Indicator 2:2*). Participation is a useful but imperfect indicator of accessibility. For instance, with no change in accessibility but with a decline in the rewards of postsecondary education, participation may fall. Another indicator of accessibility is the monetary cost of a year of college education, which is approximated by the cost of tuition, room, and board. This price provides an indicator of financial hindrances to college enrollment, which complements the participation indicators (*Indicator 2:3*). However, there are many financial aid programs designed to defray the cost of college attendance for those who cannot afford the full cost. Thus, another indicator of accessibility is the net cost, the total cost of attendance less financial aid, compared to "expected family contribution,"* an estimate of what the family should reasonably be able to afford to contribute toward the education of their children (*Indicator 2:4*).

The proportion of high school graduates in 1989 continuing to college in the fall was 60 percent (supplemental table 2:1-2). This rate has not been exceeded in the 23 years it has been calculated. In both 1988 and 1989, there was some evidence that the proportion of females continuing to college may be slightly larger than the proportion of males (supplemental table 2:1-2). The proportion of *males* enrolling in college immediately after high school graduation rose during the 1980s after falling during the first half of the 1970s and remaining stable during the last half of the 1970s. On the other hand, the rate at which *female* high school graduates enroll in college increased during most of the last two decades. Since the middle of the 1970s there has been generally little difference in the college-going propensities of men and women (*Indicator 2:1*).

The contrast between blacks and whites is different. Up through 1977 or 1978, the gap in college-going rates (*Indicator 2:1)* between blacks and whites was declining. The 1976–78 average for blacks was not significantly lower than for whites. However, between 1978 and 1982, the gap widened as white college-going rates increased and black rates decreased. Since 1982 black college-going rates have begun to increase again, but in 1988 the gap between blacks and whites remained sizable. The college-going rates of recent Hispanic high school graduates have fluctuated widely, but on average since 1986 have been similar to that of blacks. Blacks and Hispanics have been more likely than whites to delay starting postsecondary education (*Indicator 2:2*). Thus, some of the difference in the rates of immediate continuation to college are reduced by considering those who delay starting postsecondary education. Those who delay are also more likely to enroll in a 2-year college or a vocational school.

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*See supplemental note 2:4 for a discussion of expected family contribution.

Among high school graduates who enroll in college in the fall following graduation, blacks and whites make a similar pattern of choices between 4-year, 2-year, and other institutional types. Hispanics, however, are much more likely to choose a 2-year college (*Indicator 2:2*).

College tuition at both public and private colleges fell after 1972 (in constant 1990 dollars) and for the 1980–81 academic year reached it lowest level since 1967 for private institutions and since before 1964 for public institutions (supplemental table 2:3-2). In 1980–81, average tuition, room, and board at public colleges was $3,744; at private colleges it was $8,630 (*Indicator 2:3*). Since 1981, the cost of attending college has risen steadily. At public colleges it rose to $4,739 for the 1989–90 academic year; at private colleges it rose to $12,640. This represents a growth of 27 and 46 percent (faster than the Consumer Price Index) over the period for public and private colleges, respectively. During the same period, the median income of families with all children 6 to 17 years old (the closest approximation available to families with children approaching college age) grew far less—3 percent. The income of families at the 25th percentile of the income distribution fell 1 percent. The net result is that without any scholarship, grant, or loan aid, the average annual cost for tuition, room, and board at public colleges increased from 10 to 12 percent of the median income of families with children 6 to 17; and from 17 to 22 percent of the income of families at the 25th percentile of the income distribution. At private colleges, a family with the median income now would pay 33 percent of their annual income for a year of tuition, room, and board; a family at the 25th percentile would pay 59 percent (supplemental table 2:3-1).

The actual cost of college attendance is partially defrayed by financial aid. Among dependent undergraduates at public 4-year colleges (enrolled full-time and for the full-year) during the 1986–87 academic year from families with income less than $17,000 (in 1986 dollars) almost two-thirds of the total cost of attendance was met by financial aid (*Indicator 2:4*). However, for more than one-half of these families the remaining expenses (the net cost) still exceeded the "expected family contribution," an estimated amount the family should reasonably be expected to contribute toward the education of their dependent child.

Indicator 2:1 Immediate transition from high school to college

Most college students enroll in college immediately after finishing high school. So the percent of recent high school graduates enrolled in college in the October following graduation is a leading indicator of the total proportion who will eventually enroll. The percent enrolling is a measure of the accessibility of postsecondary education to high school graduates.

- **More than half, 58.4 percent, of 1988 high school graduates were enrolled in college in October of 1988.**
- **The proportion of men going to college directly from high school declined during the early 1970s, but began to increase in the 1980s, and by the late 1980s was nearly as high as in the late 1960s.**
- **The gap between men and women in the proportion going to college directly from high school disappeared by the mid-1970s.**
- **The gap between whites and blacks narrowed to its minimum in the mid-1970s, and since has varied, but in 1988 was 10 percentage points.**

Percent of high school graduates enrolling in college in the October following graduation, by sex, race/ethnicity, and type of college: 1968–1988 (selected 3-year averages)

		Male			Female			Race/ethnicity		
Year[1]	Total	Total[2]	2-year	4-year	Total[2]	2-year	4-year	White	Black[3]	Hispanic[4]
1968	53.6	60.3	—	—	47.8	—	—	55.0	42.3	—
1971	51.4	55.1	—	—	48.0	—	—	51.9	47.7	—
1974	48.3	50.7	—	—	46.1	—	—	48.8	43.8	—
1977	49.9	50.3	15.3	33.3	49.6	17.0	30.8	49.9	47.9	49.2
1978	50.0	51.3	16.1	33.5	49.0	17.5	29.8	50.1	47.5	46.5
1979	49.6	49.5	16.0	31.7	49.7	18.7	29.4	49.9	45.0	46.6
1980	50.9	50.7	17.9	31.5	51.0	19.3	30.0	51.3	43.8	49.7
1981	51.3	50.2	18.1	30.9	52.3	20.4	30.7	52.2	40.6	48.8
1982	52.4	51.9	19.1	31.6	52.9	19.4	32.2	53.9	39.2	49.3
1983	52.8	52.2	18.5	31.8	53.3	20.0	32.2	54.9	38.5	46.7
1984	55.1	55.4	19.3	34.0	54.8	19.6	33.8	57.4	40.2	49.4
1985	55.5	56.8	19.8	35.1	54.4	19.2	33.8	57.8	39.6	46.3
1986	56.1	57.6	19.3	37.5	54.6	18.8	34.9	57.3	43.3	42.4
1987	56.5	57.1	19.9	36.9	55.9	19.8	35.6	57.7	44.1	45.0
1988	58.4	57.7	19.1	38.6	59.1	21.9	37.2	59.2	49.7	48.6

— Not available.

[1] Three-year averages. For example, the 3-year average percentage for 1987 is the average of the percentages for 1986, 1987, and 1988. See supplementary table 2:1-2 for single-year percentages.

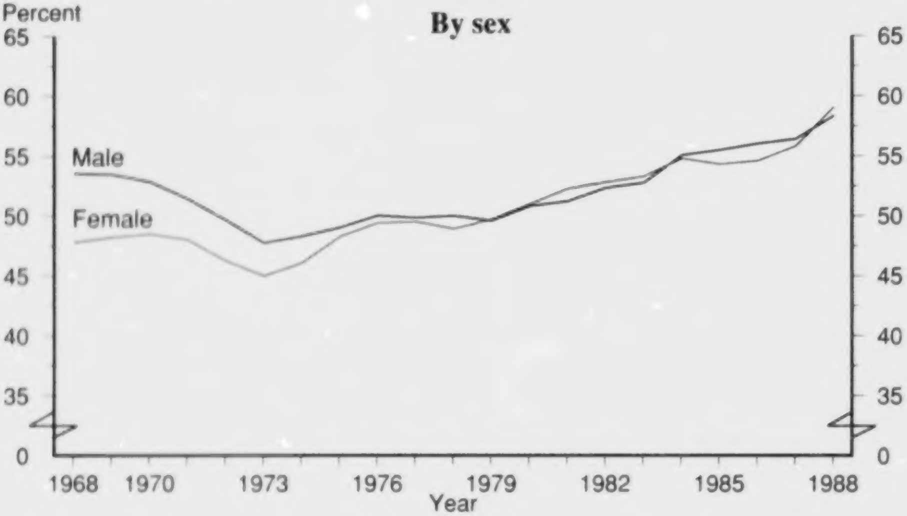
[2] Total equals the sum of those enrolled in 2-year, 4-year, and those not reporting the type of college.

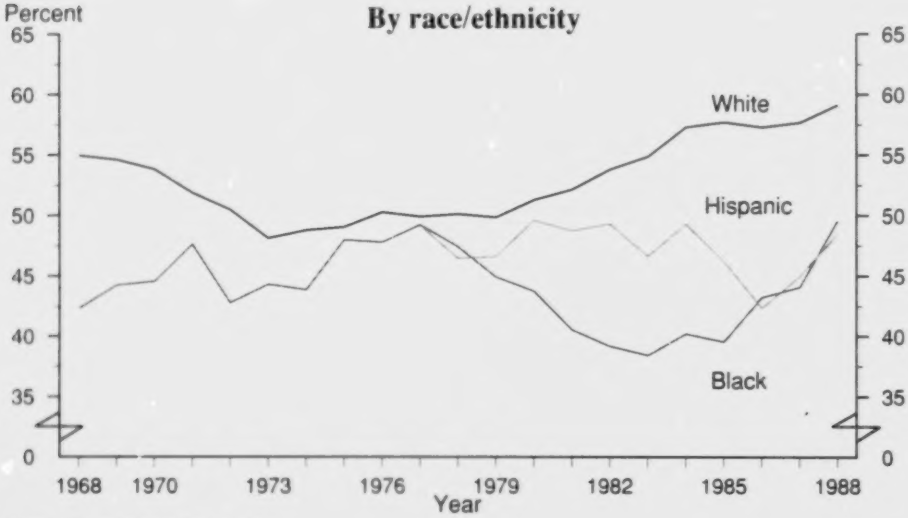
[3] Nonwhite until 1976, black thereafter.

[4] Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "School Enrollment . . .," various years and unpublished tabulations of the Bureau of Labor Statistics.

Chart 2:1 Percent of high school graduates enrolling in college in October following graduation: 1968–1988 (3-year averages)





NOTE: Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "School Enrollment . . .," various years and unpublished tabulations of the Bureau of Labor Statistics.

Indicator 2:2 Timing of entry to college

The proportion of high school graduates enrolling in postsecondary education is a measure of its accessibility. However, there are important differences in the types of institutions they may attend and some graduates may choose to delay starting postsecondary education. The type of institution chosen might reflect differences in cost, location, required high school preparation, or orientation toward work. Delay could indicate a choice to travel or work before deciding to return to the education system. Later entrance may also indicate dissatification with labor market opportunities for those with no education beyond high school.

- **Among high school graduates in 1982 continuing to college before 1986, whites were more likely than blacks, and blacks were more likely than Hispanics to enroll in a 4-year college. Hispanics were more likely than either blacks or whites to enroll in a 2-year college.**
- **Both blacks and Hispanics were more likely than whites to delay starting postsecondary education. For example, among 1982 high school graduates starting postsecondary education before 1986, 30 percent of blacks had delayed their enrollment in contrast to 18 percent of whites.**
- **There were few differences in the tendency to delay starting postsecondary education between high school graduates in 1972, 1980, and 1982 who had continued to postsecondary education within about 4.5 years of graduation (supplemental tables 2:2-1, 2:2-2, and 2:2-3).**

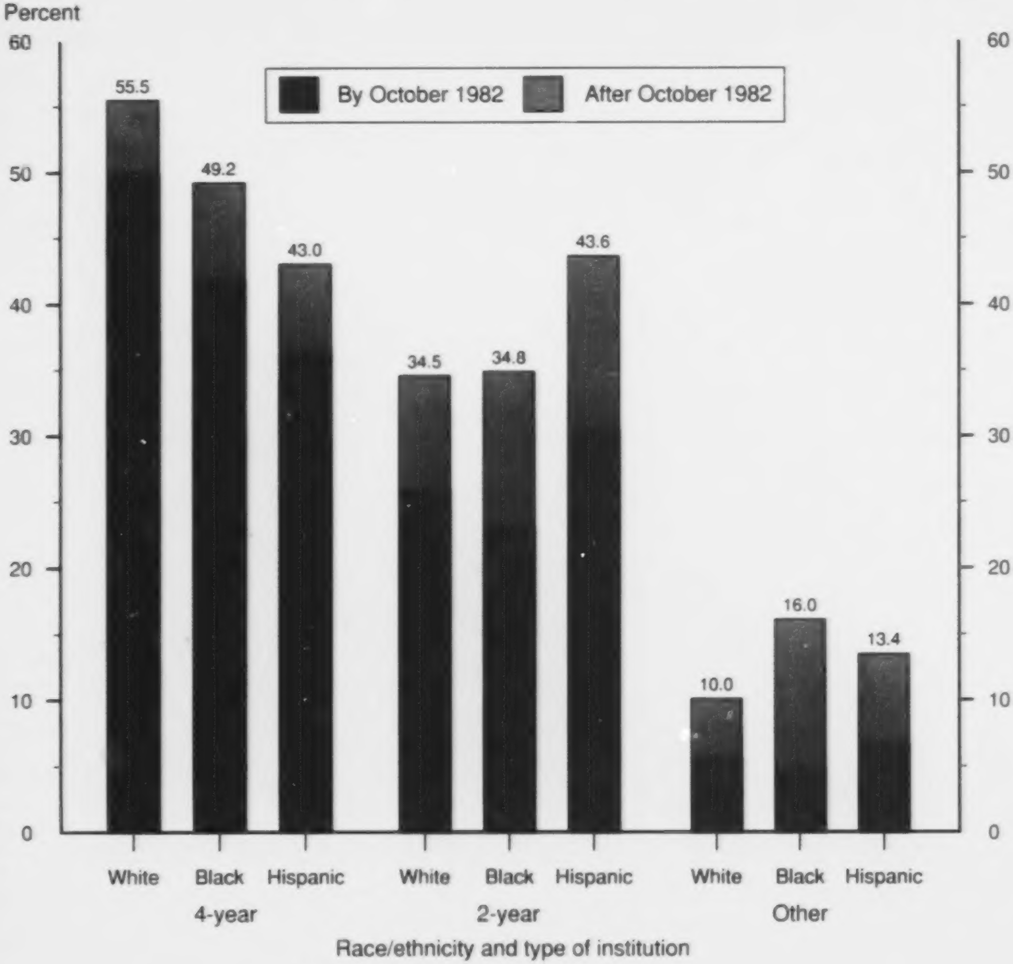
Date of first enrollment in postsecondary education among 1982 high school graduates who enrolled before 1986, by race/ethnicity and type of institution

Race/ethnicity and type of institution	Date of first enrollment in postsecondary education				
	10/82	2/83 or 10/83	2/84 or 10/84	2/85 or 10/85	10/82 to 10/85
White, non-Hispanic	Percent of those enrolled before 1986				
4-year	50.0	3.6	1.5	0.4	55.5
2-year	25.9	5.5	1.7	1.3	34.5
Other	5.7	1.3	1.5	1.5	10.0
All types	81.6	10.4	4.7	3.3	100.0
Black, non-Hispanic					
4-year	41.8	4.9	2.2	0.3	49.2
2-year	23.0	8.4	2.3	1.1	34.8
Other	4.9	5.6	2.9	2.6	16.0
All types	69.8	18.8	7.4	4.0	100.0
Hispanic					
4-year	36.4	4.6	1.8	0.2	43.0
2-year	30.5	8.6	2.8	1.8	43.6
Other	6.7	2.0	2.8	1.9	13.4
All types	73.7	15.1	7.3	3.9	100.0

NOTE: See supplemental note 2:2.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond, 1980 Sophomore Cohort Third Followup (1986).

Chart 2:2 Date of first enrollment among 1982 high school graduates who enrolled before 1986, by race/ethnicity and type of institution



NOTE: Whites and blacks exclude Hispanics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond, 1980 Sophomore Cohort Third Followup (1986).

Indicator 2:3 College costs and family income

The ability of a family to afford to send its children to college depends on many factors, including tuition levels, availability of financial aid, family income, and family size. Tuition, room, and board are a measure of the gross price of college. Deducting financial aid amounts produces the net price. The average cost for tuition, room, and board as a percent of family income is an indicator of the financial accessibility of a college education.

- **College tuition levels fell after 1972, reaching a low point for the 1980-81 academic year; since then, college costs have risen rapidly (in constant 1990 dollars).**
- **At private colleges, tuition has grown more rapidly than at public colleges—46 percent versus 27 percent between 1980 and 1989. Median family income has not kept pace; it grew only 3 percent over the same period. The income of families at the 25th percentile fell 1 percent over the period, while income of families at the 75th percentile grew 7 percent.**

Year	Undergraduate tuition, room, and board		Percentiles of family income distribution among families with children 6–17 years old*			
	Public	Private	20th	25th	Median	75th
			(Constant 1990 dollars)			
1975	$4,026	$8,851	$20,334	$23,815	$38,201	$53,818
1976	4,087	8,924	20,894	24,334	39,705	55,502
1977	4,050	8,920	20,578	24,114	39,892	56,127
1978	3,976	9,000	20,822	24,335	40,272	55,725
1979	3,877	8,796	20,509	23,966	39,771	57,088
1980	3,744	8,630	18,535	21,862	37,212	54,319
1981	3,808	8,818	17,410	20,778	36,167	52,759
1982	3,967	9,322	16,464	20,017	35,330	52,400
1983	4,119	9,800	16,309	19,802	35,161	53,515
1984	4,264	10,262	16,923	20,462	35,816	54,559
1985	4,314	10,735	17,668	20,994	37,154	55,442
1986	4,513	11,477	17,273	20,886	37,472	57,101
1987	4,635	12,030	17,459	20,986	38,372	58,391
1988	4,697	12,296	17,806	21,334	38,305	58,363
1989	4,739	12,640	17,913	21,556	38,312	58,001

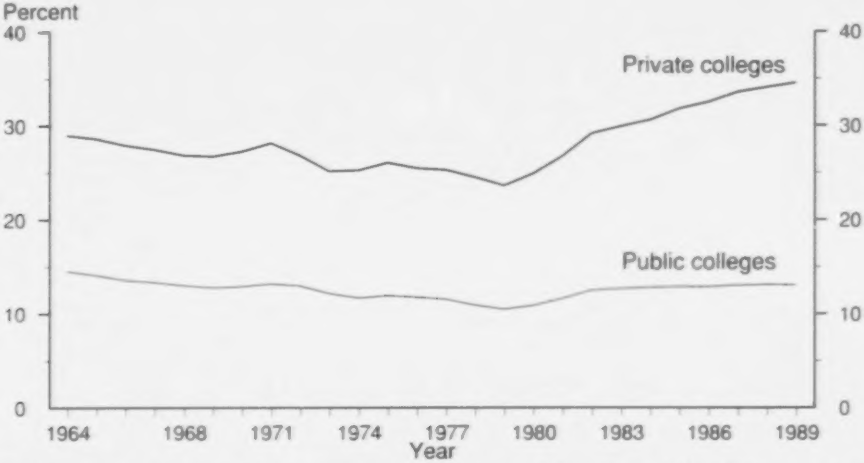
* These families may have children 18 or over; however, there is at least one child between 6 and 17 years old and none under 6.

NOTE: Tuition data are for academic years beginning 1975–1989 and family income data are for calendar years 1975–1989. The calendar year Consumer Price Index was used to calculate constant dollar figures.

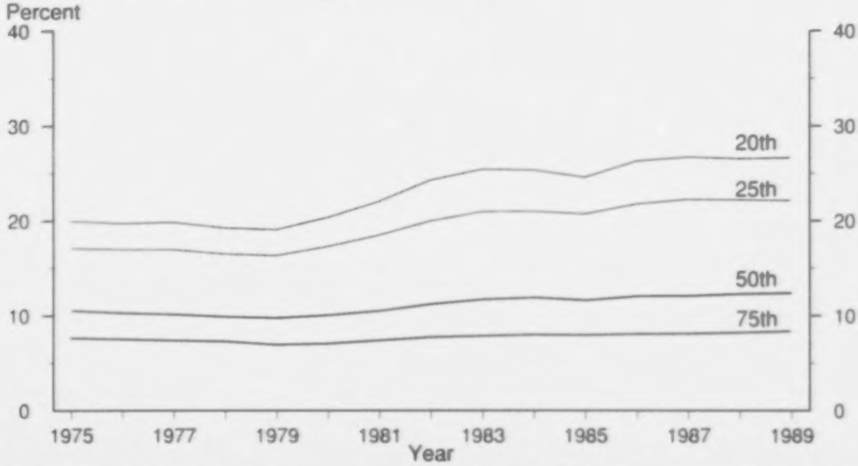
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, Table 281. U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-60, "Money Income of Families and Persons: March . . .," various years.

Chart 2:3 Tuition, room, and board as a percent of family income

Tuition, room, and board as a percent of median income of all families, by control of institution: 1964–1989



Public **tuition, room, and board as a percent of income of families with children under 18, all 6 to 17 years old, at selected income percentiles: 1975–1989**



NOTE: Year denotes the beginning of the academic year for tuition, etc. and the calendar year for family income.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, Table 281. U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-60, "Money Income of Families and Persons: March . . .," various years.

Indicator 2:4 Net cost of college attendance

One factor affecting a student's access to postsecondary education is the net cost of attendance in relation to the family's ability to pay. The net cost of attendance is tuition and fees, room and board, books, transportation, and other miscellaneous expenses less financial aid. The family's ability to pay is measured by the expected family contribution (EFC). If the net cost of attendance is less than the EFC, then the student has *access* to postsecondary education. If the student has access to institutions in several cost ranges, then the student has *choices* among several types of postsecondary institutions.

- **At institutions of the same type and control, a larger percentage of the total cost of college attendance is met by financial aid among students from families with lower income.**
- **Among students with similar family income, the percentage of the total cost met by financial aid increases with the average total cost of attendance at the institution.**
- **Of students from families with income less than $30,000 attending public 4-year colleges, only about one-half had net costs that were covered by the expected family contribution.**

Total cost of college attendance, average percent of total cost met by aid, and percent of students with net cost covered by expected family contribution for full-time full-year dependent undergraduates, by type and control of institution and family income: 1987

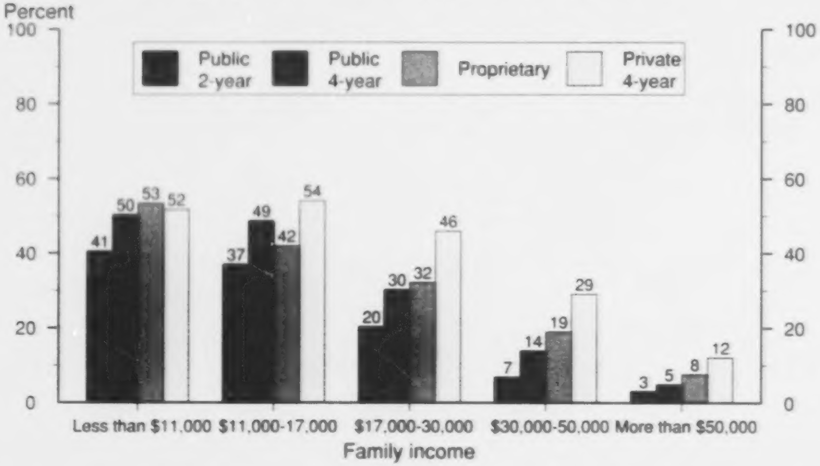
Type and control and family income	Total cost (average)	Average percent of total cost met by		Percent of students with	
		Aid	Adjusted aid	Net cost covered by expected family contribution	Adjusted net cost covered by expected family contribution
Public 2-year					
Less than $11,000	$3,010	47.5	40.5	46.6	41.7
$11,000-17,000	2,607	42.3	37.0	57.5	54.0
$17,000-30,000	2,651	24.2	20.3	67.6	65.3
$30,000-50,000	2,439	9.7	6.8	87.5	86.8
More than $50,000	2,405	3.6	3.0	97.9	97.9
Public 4-year					
Less than $11,000	4,637	62.9	50.3	44.9	32.8
$11,000-17,000	4,586	64.5	48.7	47.8	36.1
$17,000-30,000	4,425	44.9	30.3	56.2	45.0
$30,000-50,000	4,397	23.0	13.9	80.5	75.9
More than $50,000	4,556	7.8	4.9	95.7	95.1
Private, non-profit, 4-year					
Less than $11,000	9,590	64.1	51.7	37.6	21.4
$11,000-17,000	9,891	69.9	54.1	35.4	16.4
$17,000-30,000	9,795	61.2	46.0	40.8	23.0
$30,000-50,000	10,092	40.3	29.1	52.7	41.6
More than $50,000	10,963	17.0	12.1	83.3	79.3

NOTE: Net cost deducts aid (grants, loans, and work-study earnings) from total cost. Adjusted net cost deducts adjusted aid (grants and 40 percent of loans). See also notes to supplemental table 2:4-1 and supplemental note 2:4.

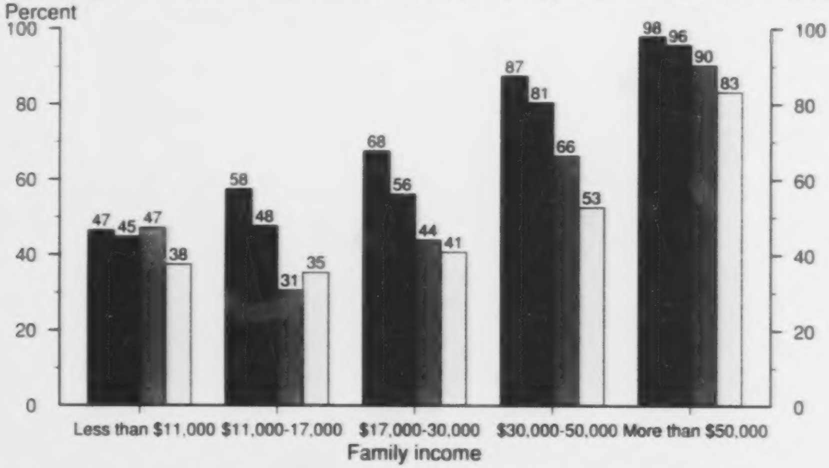
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987

Chart 2:4 **Average percent of the total cost of college attendance met by adjusted aid and percent of students with net cost covered by expected family contribution for full-time full-year dependent undergraduates, by type and control of institution and family income: Academic year ending 1987**

Average percent of total cost met by adjusted aid



Percentage of students with net cost covered by expected family contribution



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987

B. Persistence

Not all students who enter postsecondary institutions intend to complete the requirements for a 4-year baccalaureate degree. Many enter 2-year and less-than-2-year institutions with the intention of completing programs of shorter duration. Others start their postsecondary education with the intention of earning a degree, but for a variety of reasons are not able to or must delay doing so.

Research has shown that persistent attendance is strongly associated with the likelihood of finishing.[1] A break in continuous attendance, that is, dropping out or stopping out, is most likely to occur during the first 2 years in college. During the last half of the 1980s, about 81 percent of freshmen were still enrolled 1 year later (*Indicator 2:5*).[2] Among sophomores, the percentage enrolled again 1 year later was somewhat lower, reflecting the end of 2-year programs. Then it rises to 88 percent in the junior year. Continuous attendance rates are higher now than they were during the last half of the 1970s.

However, these rates are lower for Hispanics and blacks. The difference between whites and blacks was larger during the last half of the 1980s than it had been during the last half of the 1970s.

Only 43 percent of seniors in October of 1988 were enrolled again in October of 1989 indicating that most did not continue to graduate school. Among those enrolled again in October 1989, one-third were still seniors, indicating more than 4 years were required to complete their undergraduate education (supplemental table 2:5-2).

If college students are completing fewer courses each year, then it will take them longer to complete their programs.[3] If they delay starting their schooling, then they will be older when they do complete. The time between high school and college graduation captures both of these influences (*Indicator 2:6*). In 1986, less than half—46 percent—of baccalaureate degree recipients had finished in 4 years or less since high school graduation; in 1977, 54 percent finished in 4 years or less. Fewer blacks and Hispanics than whites finish in 4 years, and more blacks and Hispanics than whites take more than 6 years.

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[1] Carroll, C. Dennis. "College Persistence and Degree Attainment for 1980 High School Graduates: Hazards for Transfers, Stopouts, and Part-Timers." U.S. Department of Education, National Center for Education Statistics, January 1989.

[2] This continuation rate is similar in definition to the *event dropout rate*. See supplemental note 2:5 for a discussion of its definition.

[3] Or, in other terms, college students are taking longer to complete a given number of credits. See U.S. Department of Education, Paula Knepper, *Trends in Postsecondary Credit Production, 1972 and 1980 High School Graduates*, National Center for Education Statistics, June 1990.

B. Persistence

Indicator 2:5 Persistence rates

Persistent attendance and full-time attendance are strongly associated with completion of a 4-year degree. Those who attend part-time or stop out (i.e., have periods of nonattendance) are less likely to complete a degree. A measure of persistent attendance is the proportion of students enrolled in 2 consecutive years.

- **Between 1985 and 1989, black and Hispanic college students on average were less likely to be enrolled for 2 consecutive years than white college students.**
- **For whites, continuous attendance rates have shown a generally increasing trend (though not consistently so) since the mid-1970s.**
- **Continuous attendance after the 2nd year of college is generally lower than after the first year, reflecting completion of 2-year programs. Continuous attendance after the third year is higher than after the first year.**
- **Forty-three percent of college seniors in 1988 were enrolled again in 1989, and 35 percent of those enrolled again indicated they were still seniors (supplemental table 2:5-2).**

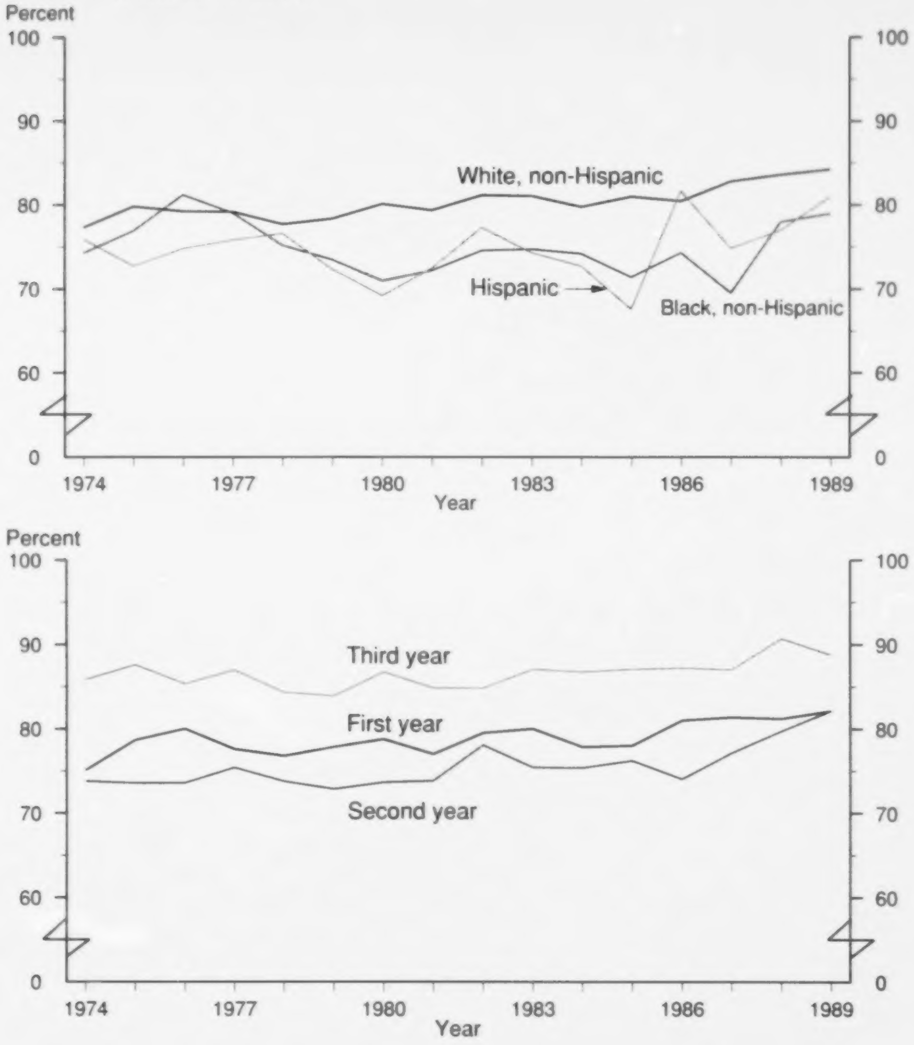
Average percent of college students 16–24 years old enrolled the previous October who are enrolled again the following October, by race/ethnicity and level: 1974–1989

	Race/ethnicity			College level previous October		
Year	White, non-Hispanic	Black, non-Hispanic	Hispanic	1st year	2nd year	3rd year
1974	77.4	74.3	76.0	75.1	73.8	85.9
1975	79.9	77.0	72.8	78.7	73.6	87.6
1976	79.3	81.3	74.9	80.0	73.6	85.4
1977	79.3	79.1	75.9	77.6	75.4	87.0
1978	77.8	75.3	76.7	76.8	73.8	84.4
1979	78.4	73.6	72.4	77.9	72.9	83.9
1980	80.2	71.0	69.2	78.8	73.7	86.7
1981	79.4	72.3	72.5	77.0	73.9	84.9
1982	81.2	74.6	77.4	79.5	78.1	84.9
1983	81.1	74.8	74.4	80.0	75.5	87.1
1984	79.8	74.2	72.8	77.9	75.4	86.7
1985	81.0	71.4	67.7	78.0	76.3	87.1
1986	80.5	74.4	81.7	81.0	74.1	87.2
1987	82.9	69.6	74.9	81.4	77.2	87.1
1988	83.7	78.0	77.0	81.2	79.8	90.7
1989	84.3	79.0	81.1	82.1	82.2	88.8

NOTE: See supplemental note 2:5 for a description of the method used to determine a respondent's enrollment level the previous October.

SOURCE: U.S. Department of Commerce, Bureau of the Census, October Current Population Survey.

Chart 2:5 **Percent of college students 16–24 years old enrolled in the previous October and enrolled again the following October, by race/ethnicity and level: 1974–1989**



SOURCE: U.S. Department of Commerce, Bureau of the Census, October Current Population Survey.

Indicator 2:6 Time between high school and college graduation

A large majority of college graduates enrolled in college immediately after high school graduation, and the vast majority of baccalaureate degree programs can be completed in 4 years by a student taking a standard, full-time course load two semesters or three quarters each year. Students take longer to graduate if they delay starting college, stopout to work, travel, raise a family, or take reduced course loads, to name a few reasons. Some students choose to take longer in order to mix work and travel with study. Others do so because of financial necessity or family responsibilities. Taking a longer time to finish college means there is less time to enjoy the benefits of being a college graduate such as a higher paying job.

- **In 1986, less than one-half of those graduating from college—46 percent—finished within 4 years of high school graduation; 27 percent took more than 6 years.**
- **Between 1977 and 1986, the percentage finishing in 4 years from high school graduation decreased for males as well as females, for whites as well as blacks, and for natural science majors as well as education majors (supplemental table 2:6-1).**
- **Whites graduating from college in 1986 were more likely to have finished within 4 years of high school graduation than blacks, Hispanics, or Asians. In contrast to 26 percent of whites, 38 and 37 percent of blacks and Hispanics, respectively, graduated from college more than 6 years after high school graduation.**

Time between high school graduation and award of the baccalaureate degree, by race/ethnicity and sex: Years of college graduation 1977 and 1986

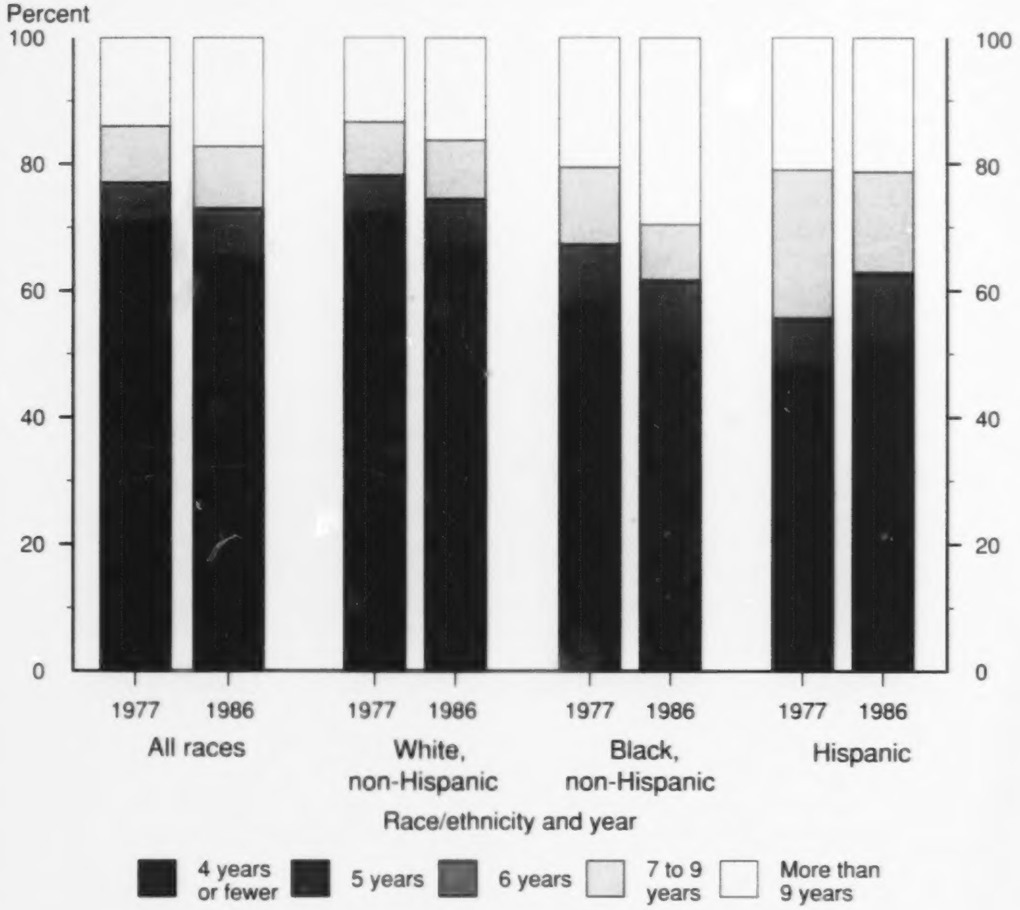
	Less than or equal to:						More than 6 years	
	4 years		5 years		6 years			
Race/ethnicity and sex	1977	1986	1977	1986	1977	1986	1977	1986
				(percent)				
Total	53.8	45.5	70.9	65.5	77.1	73.0	22.9	27.0
Race/ethnicity								
White, non-Hispanic	55.2	47.1	72.4	67.3	78.2	74.5	21.8	25.5
Black, non-Hispanic	42.3	31.8	58.2	51.6	67.3	61.6	32.7	38.4
Hispanic	31.4	33.5	48.4	51.6	55.7	62.9	44.3	37.1
Asian	48.2	35.4	66.5	57.4	76.9	66.7	23.1	33.3
American Indian	(*)	42.4	(*)	58.5	(*)	63.6	(*)	36.4
Other	—	31.9	—	46.1	—	57.8	—	42.2
Sex								
Male	47.8	41.4	65.6	63.4	73.5	72.9	26.5	27.1
Female	61.2	49.4	77.3	67.4	81.4	73.2	18.6	26.8

— Not available.

* Too few sample observations for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduate surveys.

Chart 2:6 **Time between high school graduation and award of the baccalaureate degree, by race/ethnicity: Years of college graduation 1977 and 1986**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduate surveys.

C. Educational Attainment and Curriculum

Indicators presented earlier provided measures of immediate and delayed transition to college after high school and rates of continuous attendance. Those indicators provided measures of entry into the higher education pipeline and movement through it. This section presents two measures of completion of a 4-year degree, the result of sustained participation and a major milestone. These measures depend on three factors: (1) the proportion finishing high school, (2) the proportion of high school graduates who start college and (3) the proportion of college starters who go on to complete college. The first measure is the college completion rate for high school graduates as a whole, whether or not they ever attended college; this measure depends on factors (2) and (3). The second measure is the annual number of graduates expressed as a percentage of persons 22 years old; this depends on all three factors mentioned above.

The higher education pipeline takes many branches as college students choose the field they want to study. These choices have important implications for what these students can pursue at the graduate level, earnings, and employment opportunities in the labor market. The concentration ratio, presented in two of the indicators, allows comparison of the choices made by blacks and Hispanics to those of whites and of the choices made by women to those of men.

In the past, women have been as likely as men to finish high school but less likely to finish college. However, the college attainment rates for men and women have recently converged. In 1990, the proportion of white male high school graduates 25–29 years old who had finished 4 years of college had declined 4 percentage points from its peak in the mid-1970s (from 33 percent in 1976 to 29 percent in 1990), whereas the rate for white women had risen 4 percentage points in the same time frame (from 24 to 28 percent) (*Indicator 2:7*).

Men in the United States are less likely to graduate from college than men in Japan, but they are more likely to graduate than men in West Germany, England, France, or Canada. However, in engineering or science fields, the advantage of U.S. men is smaller or reversed because far fewer American college students choose such majors than do students in other countries. For example, West German men are as likely as U.S. men to graduate in engineering fields, and French men are more likely to graduate in the science fields (*Indicator 2:8*).

As noted above, the college completion rate of women is now generally the same as it is for men. Women in the United States are twice as likely to finish college as women in Japan or West Germany. Among larger countries, only Canadian women are as likely to graduate from college. However, the undergraduate major fields women choose remain markedly different from those men choose (*Indicator 2:10*). Women are more than three times as likely as men to chose education as a major.

On the other hand, they are one-fifth as likely as men to choose computer science or engineering. However, using a broad definition of science that includes health (which women are very likely to choose) and computer sciences, American women are more likely than American men or women from other large countries to graduate from college in a science field (*Indicator 2:8*).

The proportion of black high school graduates 25–29 years old who had finished college increased from 12 percent during the last half of the 1960s to 16 percent during the last half of the 1970s, and it declined slightly then remained about level through most of the 1980s at about 14.5 percent. However, throughout the last two decades, high school completion rates of blacks rose markedly—from 50.3 percent in 1965 to 81.7 percent in 1990 (supplemental table 2:7-5). Thus, the proportion of all blacks 25–29 with 4 or more years of college increased from 7.0 percent in 1965 to 13.4 percent in 1990. An alternative measure of the progress of blacks in higher education is based on the number of degrees awarded to blacks of all ages in a given year. The number of baccalaureate degrees awarded to blacks in 1989 was 11 percent lower for black men and 7 percent higher for black women than it was in 1977, whereas the number of high school graduates in both groups grew.

The major fields of the undergraduate degrees earned by blacks are changing relative to those of whites (*Indicator 2:9*). In 1977, blacks were 42 percent more likely than whites to major in education. They were 49 percent less likely to major in engineering or computer science, and 35 percent less likely to major in the natural sciences. By 1989 this pattern changed dramatically. In that year, blacks were 29 percent *less* likely to major in education, and were only 4 and 9 percent less likely to major in engineering/computer sciences and natural sciences, respectively. In 1989 blacks were more likely than whites to major in business and technical/professional fields and in the social and behavioral sciences. The likelihood of Hispanics completing undergraduate degrees in engineering or natural sciences also rose. In engineering and computer science it rose from 10 percent less likely to 9 percent more likely than whites between 1977 and 1989. In the natural sciences it rose from 18 percent less likely to equally likely. Minority students are now studying engineering and science at the undergraduate level at considerably higher levels than in the recent past. On the other hand, the decreasing likelihood that blacks and Hispanics choose to major in education may exacerbate the shortage of black and Hispanic teachers. The increasing representation of blacks and Hispanics in computer science, engineering, business, and other technical/professional fields is likely to lead to an increase in their labor market earnings.

C. Educational Attainment and Curriculum

Indicator 2:7 Educational attainment at ages 25 to 29

Completing 4 years of college is an important educational accomplishment that will yield many benefits to those who achieve it. It represents the end-result of both starting college and persistent enrollment. Some students stop out, others drop out, but the vast majority of those who will ever complete 4 years of college do so by their late twenties.

- **In 1990, 28 percent of white high school graduates 25-29 years old had completed 4 or more years of college. In contrast, only 16 percent of black and 14 percent of Hispanic high school graduates had done so.**
- **The college completion rate among male high school graduates reached a maximum of 32 percent in 1976. By 1981 it had fallen to 27 percent and since then it has not changed very much.**
- **In 1990, the college completion rates for men and women were similar. Between 1965 and 1976, however, the percentage of female high school graduates finishing college was at least 6 percentage points below the percentage for their male counterparts.**

Percentage of high school graduates 25-29 years old who have completed 4 years of college or more, by race/ethnicity and sex: Selected years 1965–1990

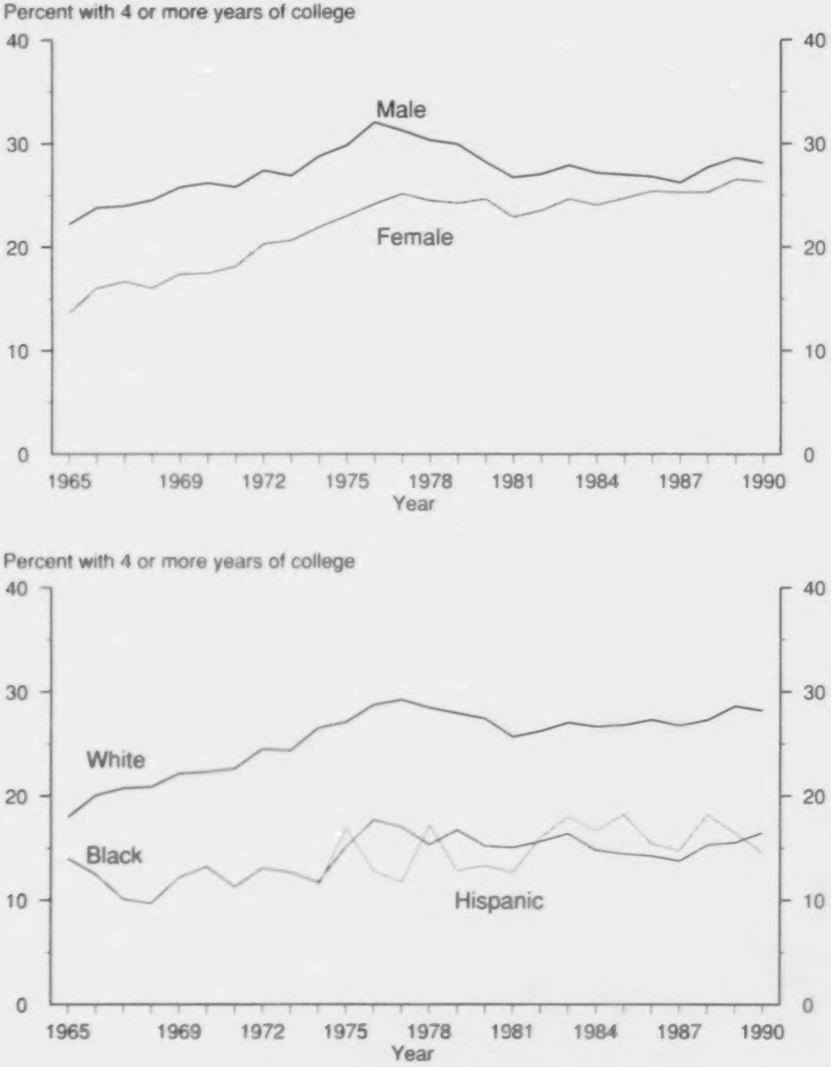
	All races			White			Black			Hispanic*		
Year	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female
1965	17.7	22.1	13.5	17.9	22.5	13.4	13.9	14.4	13.4	—	—	—
1970	21.7	26.1	17.4	22.2	26.9	17.4	13.1	12.3	13.8	—	—	—
1974	25.3	28.7	21.8	26.4	30.1	22.7	11.6	12.4	10.9	11.2	13.1	9.3
1975	26.3	29.8	22.9	27.0	30.6	23.3	15.0	15.8	14.4	16.8	19.6	14.0
1976	28.0	32.0	24.1	28.7	32.9	24.3	17.6	16.5	18.4	12.7	17.9	8.2
1977	28.1	31.2	25.1	29.1	32.5	25.7	16.9	16.5	17.3	11.6	11.7	11.6
1978	27.3	30.2	24.4	28.4	31.8	24.9	15.2	13.7	16.5	17.1	16.4	17.8
1979	27.0	29.9	24.2	27.8	30.8	24.9	16.6	18.1	15.5	12.7	14.2	11.5
1980	26.3	28.1	24.5	27.3	29.4	25.3	15.1	13.9	16.0	13.2	14.7	11.8
1981	24.7	26.6	22.8	25.6	27.7	23.4	14.9	15.4	14.5	12.5	14.4	10.9
1982	25.2	27.0	23.4	26.1	28.2	24.0	15.5	14.6	16.2	15.9	17.6	14.4
1983	26.2	27.8	24.6	26.9	28.8	25.1	16.3	16.5	16.1	17.9	16.8	19.0
1984	25.5	27.1	24.0	26.6	28.0	25.1	14.7	17.0	12.9	16.5	16.8	16.3
1985	25.7	26.9	24.6	26.7	28.0	25.4	14.3	12.8	15.6	18.1	18.6	17.8
1986	26.0	26.7	25.3	27.2	28.2	26.2	14.2	11.7	16.4	15.3	15.4	15.2
1987	25.6	26.1	25.2	26.7	27.2	26.2	13.6	13.7	13.6	14.7	15.7	13.7
1988	26.4	27.6	25.2	27.2	28.3	26.1	15.2	15.8	14.6	18.1	19.8	16.4
1989	27.5	28.5	26.5	28.5	29.5	27.6	15.4	14.8	15.9	16.4	15.7	17.1
1990	27.1	28.0	26.2	28.1	28.6	27.6	16.4	18.6	14.5	14.4	13.6	15.4

— Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States . . . ," various years; March Current Population surveys.

Chart 2:7 Percent of high school graduates 25-29 years old completing 4 or more years of college: 1965–1990



SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States . . .," various years; March Current Population surveys.

Indicator 2:8 International comparisons of higher education attainment

The percentage of an age group completing undergraduate degrees in other highly industrialized countries provides a means of evaluating the accessibility of and participation in higher education in the United States. Furthermore, comparing the percentage completing degrees in scientific and engineering fields with other advanced countries measures the levels of knowledge of the U.S. population in technical fields. A highly skilled labor force is important for the United States to maintain a position as a world leader in technical fields.

- **A higher percentage of males completed higher education in Japan than did males in the U.S. during the 1980s.**
- **The percentage of males graduating in the sciences was higher in the U.S. than it was in Japan. The percentage of males graduating in engineering in the U.S. was less than one-half that of Japan and the same as in West Germany.**
- **The percentage of women graduating in the science fields (including health sciences) was much higher in the U.S. than in the other countries. In the U.S., a larger fraction of women complete higher education in science fields than do men.**
- **The percentage of women graduating in science fields (including health sciences) increased from what it was in the early 1970s in the U.S. and Japan.**

Higher education graduates as a percent of all persons 22 years old, by field of study, sex, and country

Sex and country	Academic year beginning	All fields	Engineering	Total science*	Natural sciences
Males					
USA	1987	24.8	4.0	4.2	1.6
Japan	1988	32.1	8.5	2.7	0.9
W. Germany	1985	15.3	3.9	2.8	0.9
England	1986	15.6	3.2	4.1	3.4
France	1987	14.1	2.8	5.2	—
Canada	1987	22.7	3.2	3.8	0.8
Females					
USA	1987	27.0	0.6	5.1	1.2
Japan	1988	11.8	0.3	1.3	0.2
W. Germany	1985	10.2	0.2	1.4	0.3
England	1986	13.0	0.3	3.0	2.2
France	1987	13.9	0.6	3.4	—
Canada	1987	26.1	0.4	2.3	0.3

— Not available

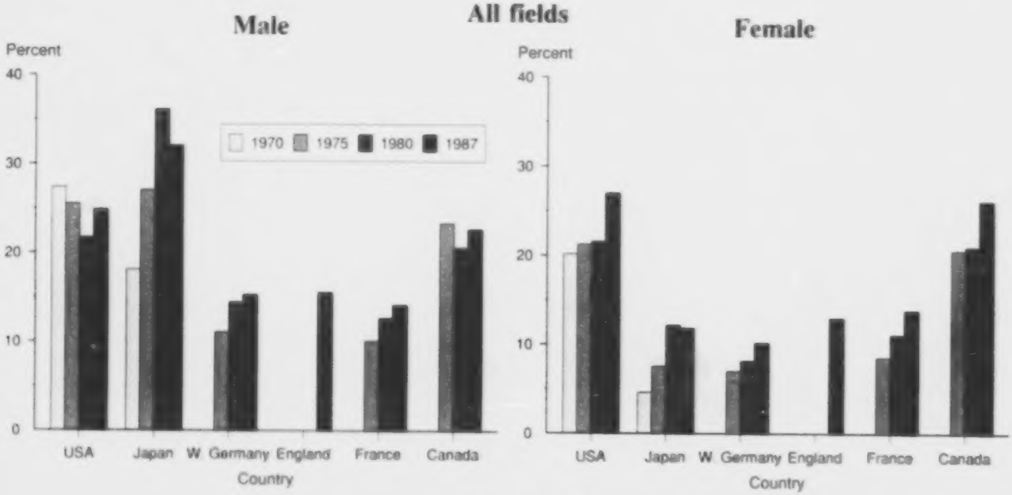
* Total science includes natural sciences (life and physical), mathematics, computer and information sciences, health sciences and allied fields, and agriculture sciences and natural resources.

NOTE: The number of 22-year-olds is estimated as the number of 20- to 24-year-olds at the end of the academic year divided by 5.

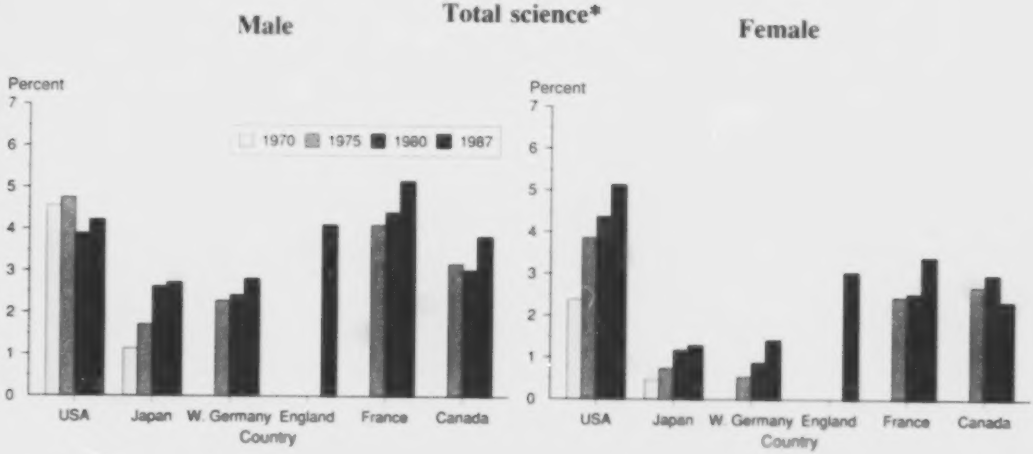
SOURCE: Unesco *Statistical Yearbook, 1989* and earlier editions; U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1989*; U.S. Department of Commerce, Bureau of the Census, unpublished tabulations.

Chart 2:8 **Higher education graduates as a percent of all persons 22 years old, by country: Academic years beginning 1970, 1975, 1980, and 1987**

All fields



Total science*



* Total science includes natural sciences (life and physical), mathematics, computer and information sciences, health sciences and allied fields, and agricultural sciences and natural resources.

SOURCE: Unesco *Statistical Yearbook, 1989* and earlier editions; U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1989*; U.S. Department of Commerce, Bureau of the Census, unpublished tabulations.

Indicator 2:9 Baccalaureate field of study, by race/ethnicity

The fields pursued by college students affect the career opportunities open to them. The minority field concentration ratio* shows how much the fields studied by minority students differ from those of white students. A ratio above 1 indicates that minority students are more likely than white students to major in a field, and a ratio below 1 indicates that they are less likely to major in a field. Changes in the size of the ratio over time show whether minority/majority differences in field of study are narrowing or widening.

- **The field of study distributions of both blacks and Hispanics became increasingly similar to the distribution of whites during the 1977–87 decade. Since 1987, however, the minority-majority gap in field preferences has widened a little (supplemental table 2:9-2).**
- **Black-white differences in the selection of science and engineering majors generally narrowed between 1977 and 1989. In the natural sciences, the narrowing of differences was largely due to declining interest among white students, not to increasing interest among black students. In engineering, it occurred because student preferences for the field increased at a faster pace among blacks than among whites (supplemental tables 2:9-2 and 3).**
- **The black concentration ratio in education changed dramatically between 1977 and 1989, from 1.42 to .71. In 1977, black students were more likely than white students to major in education, but by 1989, the reverse was true.**

Minority field concentration ratio at the bachelor's degree level, by field of study: Selected academic years ending 1977-1989

	Black concentration ratio				Hispanic concentration ratio			
Field of study	1977	1981	1985	1989	1977	1981	1985	1989
Humanities	0.69	0.74	0.83	0.80	1.17	1.11	1.09	1.10
Social and behavioral sciences	1.32	1.27	1.13	1.04	1.29	1.29	1.20	1.17
Natural sciences	0.65	0.74	0.81	0.91	0.82	0.94	0.95	1.00
Computer sciences and engineering	0.51	0.59	0.71	0.96	0.90	0.87	0.91	1.09
Education	1.42	1.35	1.01	0.71	1.05	1.12	1.04	0.75
Business and other technical/professional	0.98	1.04	1.14	1.15	0.82	0.86	0.93	0.94

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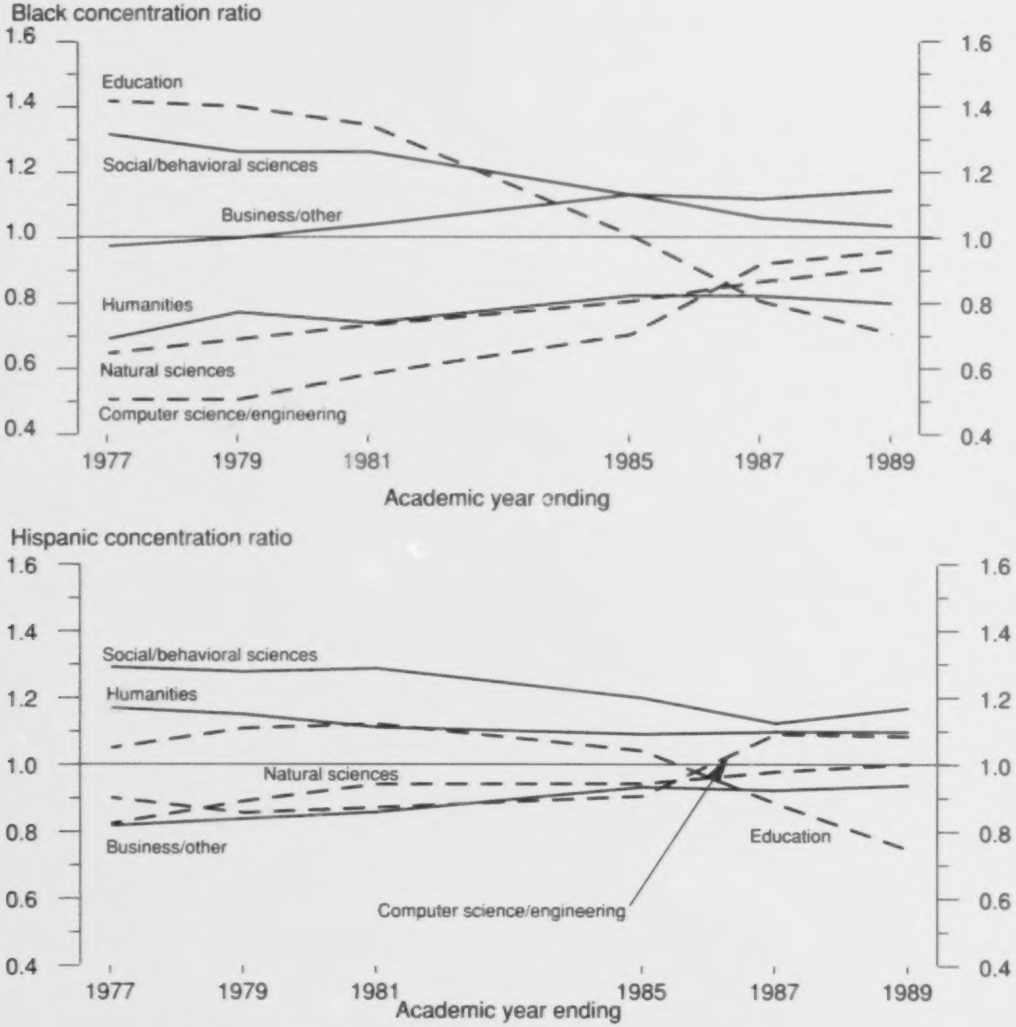
*The minority field concentration ratio is calculated as the percent of a minority group earning bachelor's degrees who majored in a selected field divided by the percent of whites earning bachelor's degrees who majored in the same field. Example: The 1989 black to white concentration ratio for education = 7.3/10.3 = .71. Blacks and whites are non-Hispanic.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Chart 2:9 **Minority field concentration ratio at the bachelor's level, by field: Selected academic years ending 1977–1989**



NOTE: Data for 1983 are not available. Blacks are non-Hispanic.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Indicator 2:10 Baccalaureate field of study, by sex

The female field concentration ratio* shows how much the fields studied by women differ from those studied by men. Ratios above 1 indicate that women are more likely than men to major in a field, and ratios below 1 indicate that they are less likely to major in a field. Changes in the ratio show whether field of study differences between men and women are narrowing or widening. They thus point to possible future changes in the occupations and earnings potential of women compared with men.

- **Women and men differ greatly in their major fields of study. Women are more likely than men to major in education, the humanities, and other technical/professional fields and less likely to major in the natural sciences, the computer sciences and engineering, and business.**
- **Sex differences narrowed somewhat between 1971 and 1989 in most fields. Despite this, however, substantial differences remain. In 1989, social and behavioral sciences was the only field with a concentration ratio at or near parity (1.00).**
- **The proportion of women majoring in education dropped substantially between 1971 and 1989, from 36 to 14 percent. Nevertheless, women are still over three times more likely than men to major in the field. In 1989, more than three-fourths of the bachelor's degrees conferred in education were awarded to women.**

Female field concentration ratio at the bachelor's degree level, by field of study: Selected academic years ending 1971–1989

Field of study	1971	1974	1977	1980	1983	1986	1989
Humanities	1.84	1.63	1.50	1.43	1.37	1.36	1.34
Social and behavioral sciences	0.81	0.84	0.93	1.01	1.03	1.02	1.00
Natural sciences	0.50	0.54	0.58	0.61	0.65	0.70	0.71
Computer sciences and engineering	0.02	0.04	0.08	0.14	0.21	0.24	0.20
Education	3.81	3.49	3.04	2.93	3.07	3.06	3.14
Business and management	0.13	0.19	0.36	0.53	0.71	0.82	0.79
Other technical/professional	1.46	1.50	1.56	1.79	1.91	1.93	1.77

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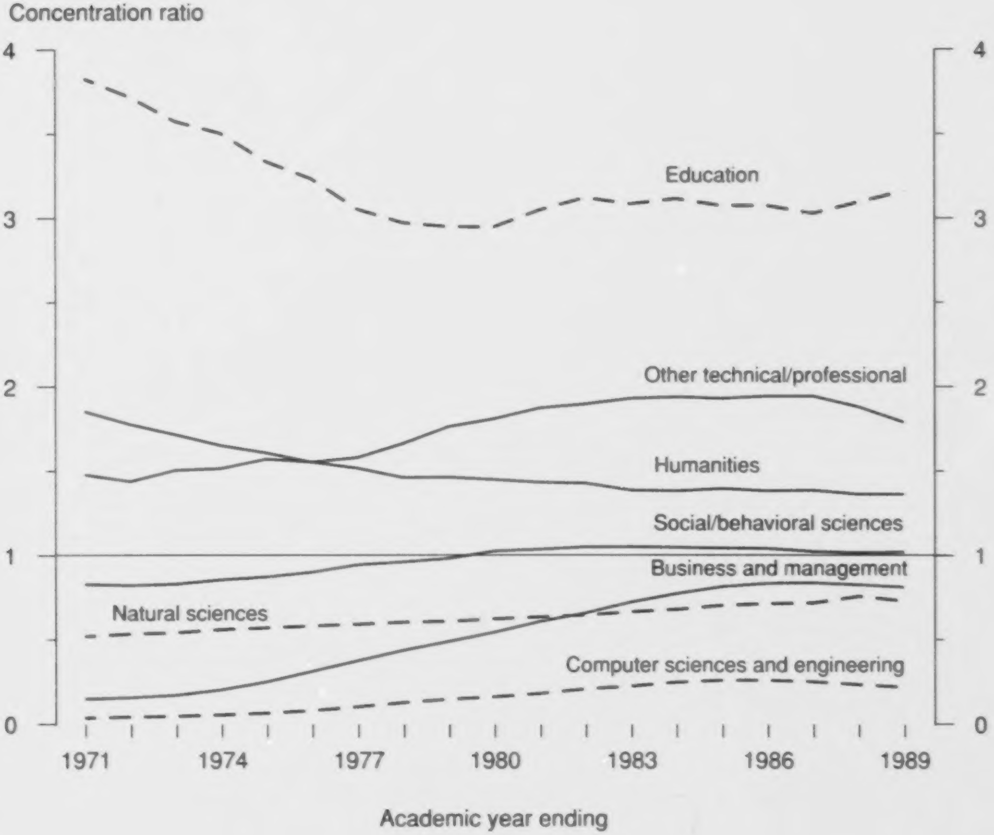
*The female field concentration ratio is calculated as the percent of women earning bachelor's degrees who major in a specific field divided by the percent of men earning bachelor's degrees who major in the same field.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Chart 2:10 Female field concentration ratio at the bachelor's level, by field of study: Academic years ending 1971–89



NOTE: The female field concentration ratio is calculated as the percent of women earning bachelor's degrees who major in a specific field divided by the percent of men earning bachelor's degrees who major in the same field.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Indicator 2:11 Degrees conferred, by race/ethnicity

The ability of our colleges and universities to attract and retain minority students is important to the Nation's success in achieving its goal of equal opportunity. Changes in the number of degrees earned by minorities and by whites measure higher education's progress toward this goal.

- **The number of bachelor's degrees earned by whites was higher in 1989 than it had been in 1981, but the number earned by blacks was lower.**
- **Among blacks, the period from 1977 to 1985 was one of substantial growth in the number of high school graduates aged 20–24. This growth was not accompanied by comparable increases in the number of bachelor's degree recipients. Between 1987 and 1989, however, the number of bachelor's degrees earned by blacks rose even though the number of black high school graduates fell.**
- **Despite substantial growth in the number of black and white college graduates aged 25–34 between 1977 and 1989, the number of advanced degrees fell for both races. The drop in degrees was greater for blacks than whites.**

Percent change since 1977 in number of high school and college graduates and in number of degrees earned, by race and degree level: Selected years 1981–1989

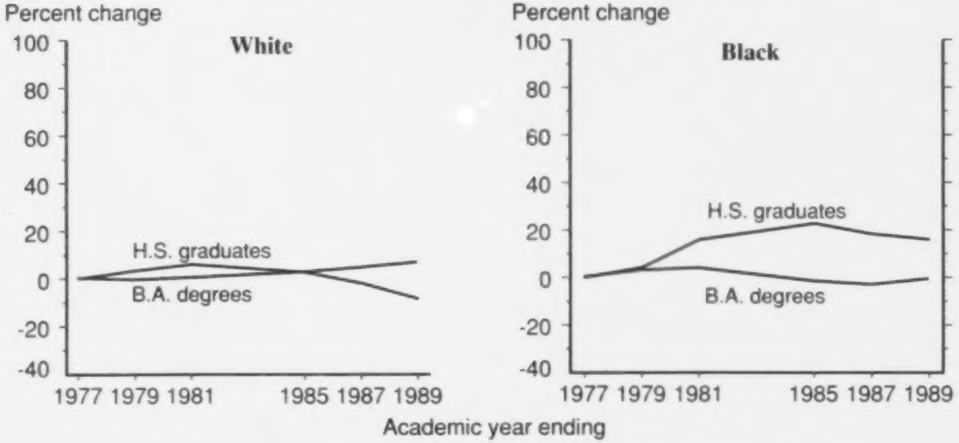
Degrees and graduates	White			Black		
	1981	1985	1989	1981	1985	1989
Bachelor's degrees	0.3	2.6	6.6	3.7	-1.8	-0.9
Advanced degrees	-5.3	-11.3	-6.5	-14.0	-27.0	-26.5
Master's	-9.0	-15.7	-8.9	-18.5	-33.7	-33.0
First-professional	10.5	8.2	4.7	15.5	19.4	22.2
Doctor's	-3.5	-10.8	-7.2	1.0	-7.9	-14.5
Graduates:						
High school, aged 20–24	6.1	2.8	-8.3	15.8	22.6	15.9
College, aged 25–34	12.4	22.2	29.7	29.0	73.3	84.5

NOTE: Degree data are based on whites and blacks of non-Hispanic origin, but population estimates are for all whites and blacks. High school graduates are defined as those who have completed 12 or more years of schooling and college graduates as those who have completed 16 or more years.

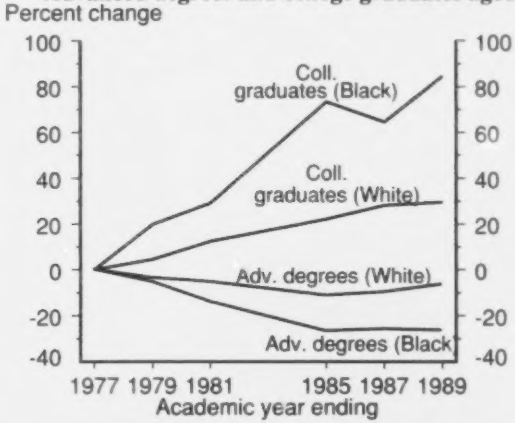
SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred. U.S. Department of Commerce, Bureau of the Census, Current Population Survey (March), various years.

Chart 2:11 **Percent change since 1977 in number of bachelor's and advanced degrees earned and in number of high school and college graduates, by race: Selected years 1979–1989**

Bachelor's degrees and high school graduates aged 20–24



Advanced degrees and college graduates aged 25–34



NOTE: Degree data are based on whites and blacks of non-Hispanic origin, but population estimates are for all whites and blacks. Data for 1983 are not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred. U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March of various years.

Indicator 2:12 Degrees conferred, by sex

Historically, women have earned fewer degrees than men, especially at the graduate level. An important issue is whether and how much the differences between men and women have narrowed at the different degree levels. Also of interest is whether women have actually become overrepresented at any level.

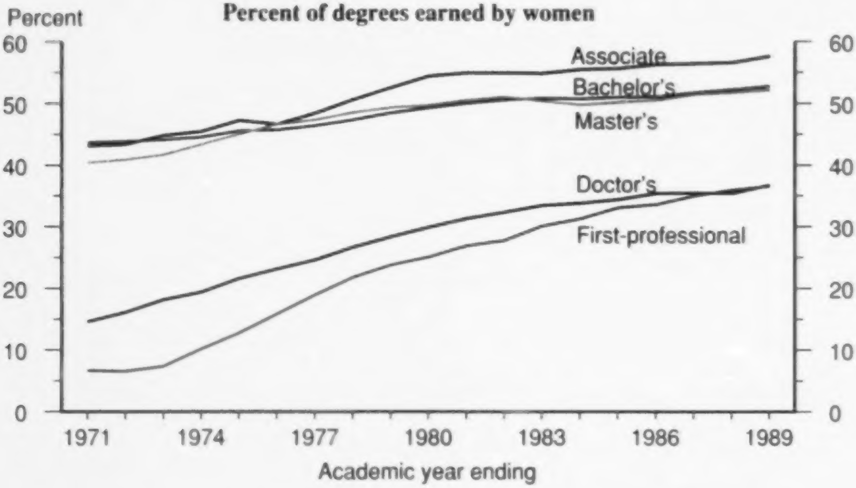
- **The percent of degrees earned by women increased substantially between 1971 and 1989 at all degree levels. Growth was most rapid during the 1970s but continued in the 1980s at a slower pace.**
- **The growth in women's share of degrees was most dramatic at the doctor's and first-professional levels. Their share of doctor's degrees increased from 14 to 37 percent and their share of first-professional degrees from 6 to 36 percent between 1971 and 1989.**
- **Most of the growth in women's share of degrees occurred because the *number* earned by women increased much more rapidly than the number earned by men. In the case of doctor's degrees, however, women's share partly increased because the number earned by men declined.**
- **In 1989, women earned more than one-half of the associate's, bachelor's, and master's degrees and over one-third of the doctor's and first-professional degrees.**

Degrees conferred, by degree level and sex: Selected academic years ending 1971–1989

	Percent of degrees earned by women			Percent change in number of degrees conferred since 1971			
				1980		1989	
Degree level	1971	1980	1989	Men	Women	Men	Women
Associate's	42.8	54.2	57.4	27.2	100.7	28.4	130.8
Bachelor's	43.4	49.0	52.5	-0.4	25.2	1.6	46.8
Master's	40.1	49.4	51.9	9.1	59.5	7.8	74.1
Doctor's	14.3	29.7	36.5	-16.7	111.3	-17.5	185.2
First-professional	6.3	24.8	36.3	48.3	625.0	26.8	969.6

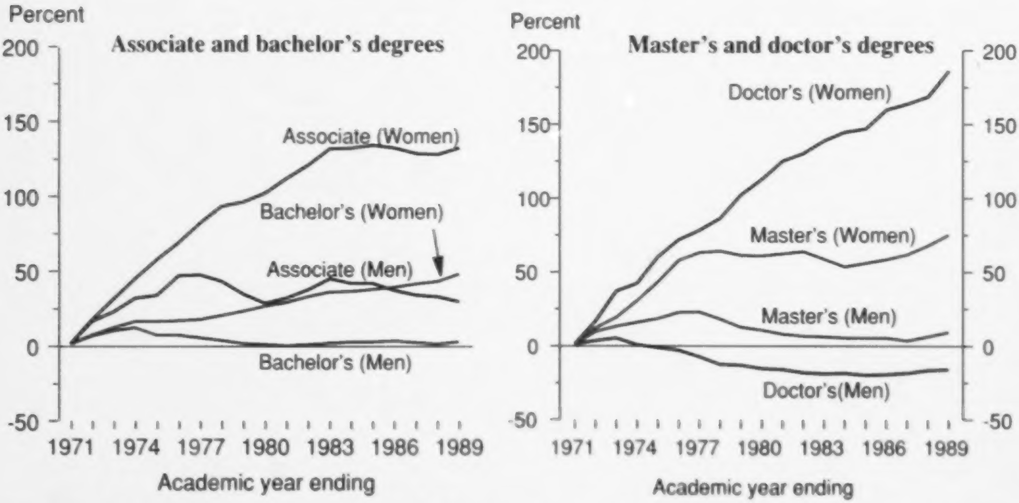
SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Chart 2:12 **Degrees conferred, by degree level and sex: Academic years ending 1971–89**



Percent of degrees earned by women

Percent change in number of degrees conferred since 1971



Associate and bachelor's degrees

Master's and doctor's degrees

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

D. Continuation to Advanced Levels

The final stage of formal education is graduate school. That is the place where our young people become teachers, scholars, scientists, physicians, and lawyers. In addition to the direct contribution these professionals make to the U.S. economy and society, they serve as the role models for future generations of school children. In addition, new faculty for colleges and universities come from the Nation's graduate schools.

Just as the SAT and ACT exams provide measures of the general learned abilities of prospective undergraduates, the Graduate Record Examinations (GRE) provide measures of the general learned abilities of prospective graduate students. The number of GRE test-takers as a fraction of baccalaureate degrees awarded declined between 1971 and 1982, but since has been rising (*Indicator 2:13*). The average total GRE test score reached its low in 1979 but rose 51 points by 1989. Among U.S. citizens, the average total GRE test score rose 42 points between 1978 and 1988 (supplemental table 2:13-3). The quantitative scores fell less and began rising earlier than the verbal scores. These trends in GRE scores suggest that the quality of graduate students may have been increasing during most of the 1980s.

Not all students who eventually earn graduate degrees continue their studies immediately after getting a baccalaureate degree (for example, graduate schools of management often encourage prospective students to gain some work experience before pursuing an MBA degree). However, the proportion who do continue immediately is a leading indicator of the ultimate number who ever will. Among college graduates in 1986, 11 percent were enrolled in graduate school (and not working full time) about 1 year later (*Indicator 2:14*). College graduates in 1986 were more likely to take a full-time job and less likely to enroll in graduate school than college graduates 9 years earlier. The proportion going on to graduate school varies widely by undergraduate major. Among those with undergraduate degrees in business, only 4 percent went on to graduate school in 1986; among those with undergraduate degrees in the natural sciences, 33 percent went on to graduate school.

The number of doctoral degrees awarded to U.S. citizens was 4.6 percent lower in 1989 than in 1977 (*Indicator 2:21*). However, among women the number increased 53 percent, and among men it decreased 25 percent (derived from figures in supplemental table 2:11-3). Among men, it increased only for Asian men. Among women, it increased for all racial/ethnic groups. By 1989, white women, Hispanics, and Asians earned larger shares of doctoral degrees than they had in 1977. The number of first-professional degrees awarded was 10 percent higher in 1989 than in 1977. The total number of master's degrees awarded fell slightly—a large increase in master's degrees in business and computer science was balanced by a large fall in master's degrees in education. The decline in master's degrees awarded was concentrated among whites and blacks. The number awarded to Hispanics and Asians rose. In general, during the 1977–1989 period, the number of advanced degrees conferred did not keep pace with the number of baccalaureate degrees awarded or increases in the population.

A substantial percentage of doctoral degrees are awarded in education. In 1989, 22 percent of doctoral degrees awarded to whites, 42 percent of those awarded to blacks, and 26 percent of those awarded to Hispanics were in education (supplemental table 2:15-5). However, in each case, the percentage was lower than it had been in 1977. In addition, the median total time between the award of the baccalaureate degree and the doctoral degree in education is higher than in other fields and increased from 13.3 years in 1980 to 17.7 years in 1989 (*Indicator 2:16*). Women are more likely than men to choose education for their doctoral field of study—30 v. 13 percent in 1989.* At the undergraduate level, 14 percent of women and 5 percent of men choose education as their major (supplemental table 2:10-2).

Blacks and Hispanics are less likely than whites to earn a doctorate in the natural sciences. In 1989, 22 percent of doctorates awarded to whites, 12 percent of those to blacks, and 17 percent of those to Hispanics were in the natural sciences. In each case, the percentage was slightly higher than it had been in 1977. The median total time between the baccalaureate degree and the doctoral degree in the natural sciences is much shorter than it is for other fields, especially education, but increased from 6.1 years in 1980 to 7.5 years in 1990. In 1989, 17 percent of doctoral degrees awarded to women and 27 percent of doctoral degrees awarded to men were in the natural sciences.

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*U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

D. Continuation to Advanced Levels

Indicator 2:13 Graduate Record Examination (GRE) scores

The Graduate Record Examination (GRE) is a measure of the general learned abilities of prospective graduate students. It is used to predict performance in graduate school. No good measure of the amount of learning acquired during college exists. The GRE, although taken by less than a third of college graduates, is the best broad-based measure of general learned abilities that exists for prospective graduate students. However, the reader should be aware of the limitations of average GRE scores which include: (1) the proportion of college graduates taking the exam changes over time, (2) an increasing proportion of foreign students are taking the exam, and (3) some students take the exam more than once.

- **The average total score on the GRE fell 70 points between 1965 and 1979. Since then it has increased 51 points.**
- **The average quantitative score on the GRE has risen 52 points since 1975, and is now higher than at any time since the mid-1960s. The verbal score has risen 15 points since 1982, but is still well below the levels of the mid-1960s.**
- **Non-U.S. citizens do better on the quantitative component and more poorly on the verbal component of the GRE than U.S. citizens. Also, the percentage of test-takers who are not U.S. citizens has been increasing.**

Graduate Record Exam scores and number of test-takers: Academic years ending 1965–1989 (selected years)

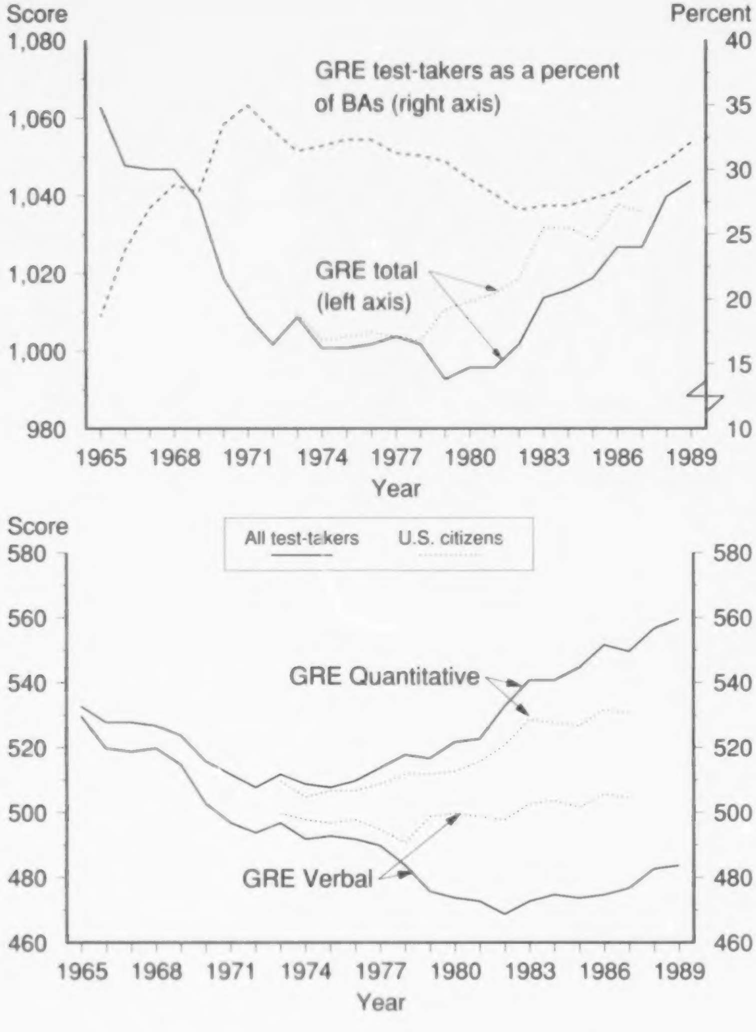
	GRE test-takers			GRE scores		
Year	Number	Percent of BAs*	Percent U.S. citizens	Total	Verbal	Quantitative
1965	93,792	18.7	—	1,063	530	533
1967	151,134	27.0	—	1,047	519	528
1969	206,113	28.3	—	1,039	515	524
1971	293,600	35.0	—	1,009	497	512
1973	290,104	31.5	—	1,009	497	512
1975	298,335	32.3	—	1,001	493	508
1976	299,292	32.3	92.5	1,002	492	510
1977	287,715	31.3	91.3	1,004	490	514
1978	286,383	31.1	91.1	1,002	484	518
1979	282,482	30.7	90.0	993	476	517
1980	272,281	29.3	89.3	996	474	522
1981	262,855	28.1	86.8	996	473	523
1982	256,381	26.9	86.7	1,002	469	533
1983	263,674	27.2	86.1	1,014	473	541
1984	265,221	27.2	85.9	1,016	475	541
1985	271,972	27.8	84.9	1,019	474	545
1986	279,428	28.3	84.5	1,027	475	552
1987	293,560	29.6	84.2	1,027	477	550
1988	303,703	30.6	—	1,040	483	557
1989	326,069	31.2	—	1,044	484	560

— Not available.

* Ratio of the number of GRE test-takers to the number of baccalaureate degrees awarded expressed as a percent.

SOURCE: Educational Testing Service and U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred.

Chart 2:13 **Graduate Record Examination (GRE) scores and number of test-takers as a percent of baccalaureate degrees: Academic years ending 1965–1989**



SOURCE: Educational Testing Service and U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred.

D. Continuation to Advanced Levels

Indicator 2:14 Continuation to graduate school

Postgraduate education is where the most advanced levels of knowledge are acquired. Scientific advances depend in large part on a continuing supply of highly educated young scientists. The renewal of faculty in colleges and universities depends on new generations of PhDs and other advanced degree recipients. Law, medicine, and business are other fields that depend on students pursuing postgraduate education. In most fields, the percent of baccalaureate degree recipients immediately enrolling in graduate school, as opposed to taking full-time jobs, is a measure of the future supply of advanced talent in those fields.

- **The proportion of baccalaureate degree recipients going on to graduate school immediately following graduation declined from 17.3 percent for 1977 graduates to 11.4 percent for 1986 graduates.**
- **The decline in the rate of continuation to graduate school held for females as well as males and for minorities as well as for whites (supplementary table 2:14-1).**
- **The rate of continuation to graduate school for graduates who majored as undergraduates in the humanities, social science, and natural science fields was much higher than it was for those who majored in computer science/engineering or technical/professional fields, such as education and business.**

Percent of baccalaureate degree recipients employed full-time or enrolled 1 year after graduation: Years of graduation 1977, 1980, 1984, and 1986

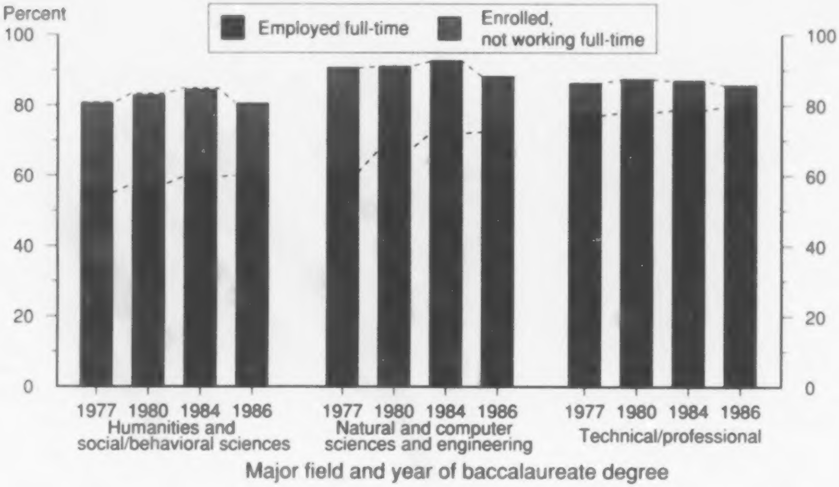
	Employed full-time				Enrolled*			
Major field of study	1977	1980	1984	1986	1977	1980	1984	1986
All fields	68.0	71.1	72.7	73.7	17.3	15.9	14.8	11.4
Humanities and social/behavior sciences	55.6	57.8	60.0	60.4	24.9	25.0	24.3	20.1
Humanities	56.6	55.2	59.5	58.7	21.5	23.4	21.8	19.4
Social/behavior sciences	55.0	59.8	60.3	61.7	26.9	26.1	26.1	20.7
Natural and computer sciences and engineering	61.5	67.7	72.5	72.6	29.2	23.3	20.1	15.6
Natural sciences	50.1	52.3	51.6	52.5	38.7	36.4	38.1	32.5
Computer sciences and engineering	81.8	85.9	85.6	83.6	12.3	7.9	8.8	6.3
Technical/professional	77.5	78.4	79.1	80.0	8.8	9.1	7.9	5.7
Education	74.3	73.0	73.2	75.4	7.3	9.4	9.6	5.8
Business	83.2	83.5	85.0	85.0	7.5	8.2	5.5	3.9
Other technical/professional	74.9	77.0	74.8	75.1	11.2	9.8	10.2	8.3

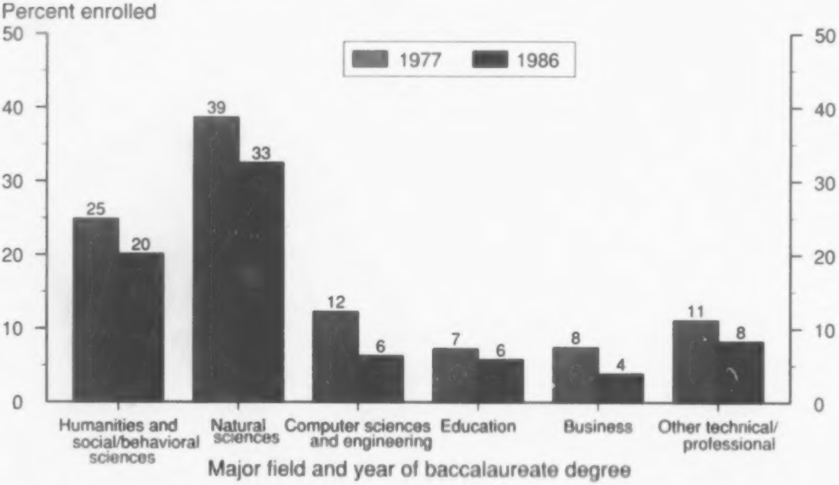
* Enrolled and not employed full-time.

NOTE: Data were collected in 1978, 1981, 1985, and 1987, 1 year after graduation. Those neither employed full-time nor enrolled include those who are not enrolled and either working part-time, unemployed, or not in the labor force.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Chart 2:14 Percent of baccalaureate degree recipients employed full time and percent enrolled 1 year after graduation





SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

D. Continuation to Advanced Levels

Indicator 2:15 Graduate field of study, by race

The fields pursued by college students affect the career opportunities open to them. The minority field concentration ratio* shows how much the fields studied by minority students differ from those of white students. A ratio above 1 indicates that minority students are more likely than white students to major in a field, and a ratio below 1 indicates that they are less likely to major in a field. Changes in the size of the ratio over time show whether minority/majority differences in field of study are narrowing or widening.

- **Black and white graduate students differ in their fields of study, especially at the doctor's degree level. Their differences narrowed somewhat between 1977 and 1989, but gaps remain.**
- **Black graduate students are much more likely than white graduate students to specialize in education. This is particularly true at the doctorate level where, in 1989, 42 percent of black compared with 22 percent of white students earned degrees in the field.**
- **Black graduate students are much less likely than white graduate students to earn degrees in science and engineering. Between 1977 and 1989, these differences narrowed at the master's but not at the doctor's degree level.**
- **The field distributions of Hispanics and whites are more alike than those of blacks and whites. This is true at both the master's and doctor's degree levels.**

Black field concentration ratio and percent of degrees, by race: Selected years

	Black field concentration ratio: 1977 and 1989				Percent of degrees, by race: 1989			
	Master's degrees		Doctor's degrees		Master's degrees		Doctor's degrees	
Field of study	1977	1989	1977	1989	White	Black	White	Black
Humanities and social/behavioral sciences	0.69	0.69	0.76	0.95	15.7	10.9	33.5	31.8
Natural and computer sciences and engineering	0.35	0.53	0.36	0.39	12.2	6.5	31.2	12.1
Education	1.49	1.28	2.22	1.92	29.3	37.5	21.9	42.0
Business and other technical professional	0.75	1.05	0.72	1.04	42.8	45.1	13.5	14.0

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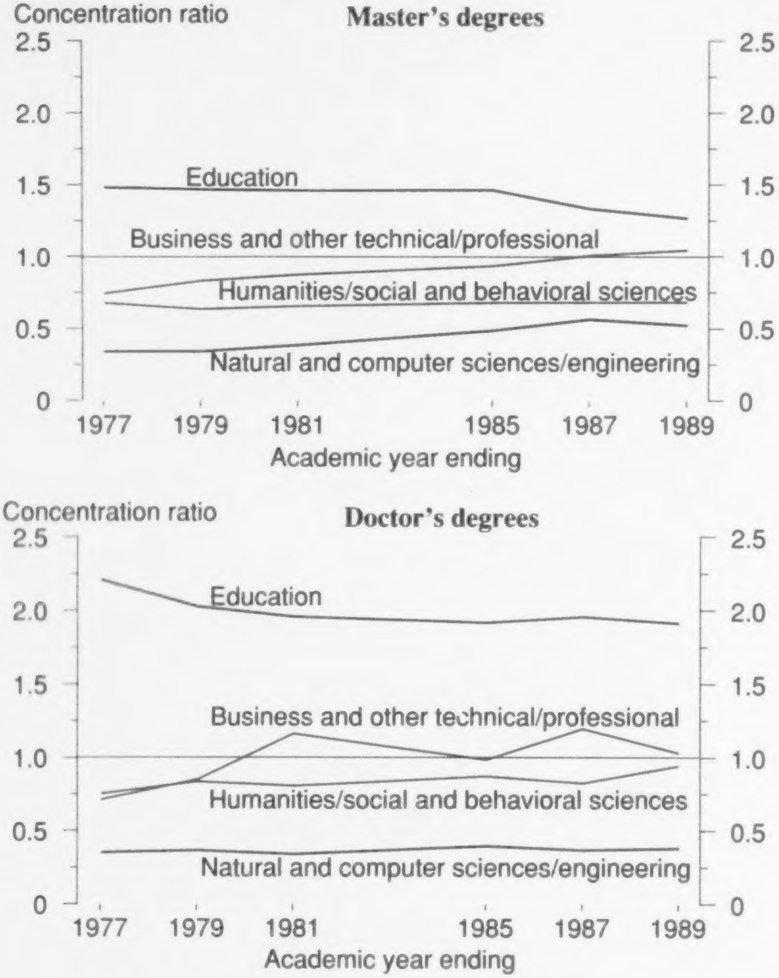
*The minority field concentration ratio is calculated as the percent of a minority group earning degrees who majored in a specific field divided by the percent of whites earning degrees who majored in the same field. Example: the 1989 black to white field concentration ratio in education at the master's degree level = 37.5/29.3 = 1.28.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Chart 2:15 **Black field concentration ratio, by degree level: Selected academic years ending 1977–1989**



NOTE: Data for 1983 are not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

D. Continuation to Advanced Levels

Indicator 2:16 Time to the doctorate degree, by field

Trends in the number of years doctoral students take to complete their degrees suggest changes in the time needed to produce doctorate-level personnel. These trends may provide clues to other important changes as well, such as in students' financial resources and in part-time study. Total time-to-degree (TTD) measures the number of years between completion of the baccalaureate and doctorate degrees and thus includes nonenrolled as well as enrolled time. Registered time-to-degree (RTD), however, only measures the number of years enrolled, full-time or part-time, in graduate school.

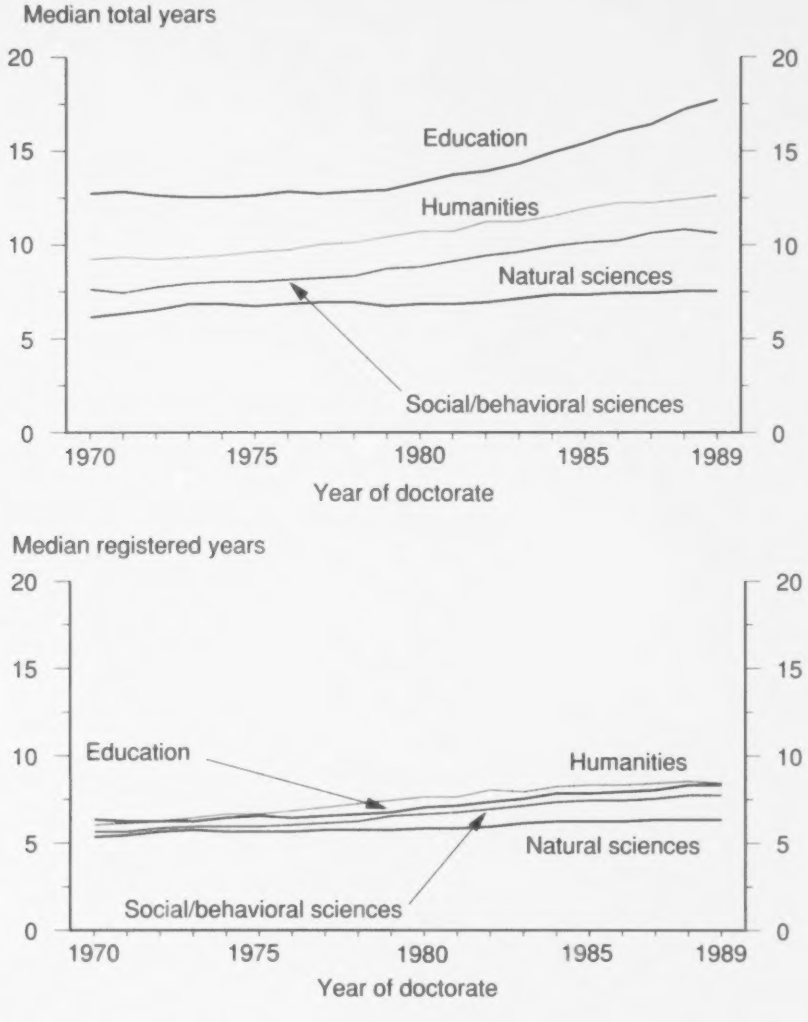
- **Between 1970 and 1989, total and registered time-to-degree increased in all fields, with absolute growth in total time exceeding that in registered time.**
- **Total time-to-degree grew the most in education, whereas the greatest growth in registered time occurred in the humanities.**
- **Time-to-degree varies by field of study. Students in the natural sciences and in the computer sciences and engineering take less time than average to complete their degrees, whereas education students generally take longer than average.**
- **Field differences in time-to-degree are smaller for registered than for total time.**

Median total and registered time to the doctorate degree among U.S. citizens and permanent U.S. residents, by field of study: 1970, 1980, 1989

Field of study	Median total time-to-degree			Median registered time-to-degree		
	1970	1980	1989	1970	1980	1989
Total	7.9	9.4	11.0	5.6	6.4	7.2
Humanities	9.2	10.7	12.6	6.0	7.6	8.4
Social and behavioral sciences	7.6	8.8	10.6	5.6	6.6	7.7
Natural sciences	6.1	6.8	7.5	5.3	5.8	6.3
Computer sciences and engineering	6.9	7.7	8.1	5.3	5.8	6.2
Education	12.7	13.3	17.7	6.3	7.0	8.3
Other technical/professional	8.5	9.8	12.8	5.4	6.1	7.3

SOURCE: National Research Council, Doctorate Records File, Survey of Earned Doctorates.

Chart 2:16 Median total and registered time-to-doctorate among U.S. citizens and permanent U.S. residents, by field of study: 1970–1989



SOURCE: National Research Council, Doctorate Records File, Survey of Earned Doctorates.

E. Economic Outcomes

Postsecondary education is an investment in human skills. The investment involves both a cost and a return. The cost includes tuition, books, and fees, but also earnings given up by not working or by working part time while in college. The returns come in many forms. Some are monetary, others are not. Some are related to the labor market, others are not. Among the returns related to the labor market are better employment opportunities, jobs that are less sensitive to general economic conditions, better opportunities to participate in employer-provided training, better working conditions, and higher earnings. Other returns not related to the labor market include greater interest and participation in civic affairs, better health and longer life, and reduced criminal behavior.

The costs and returns to investing in postsecondary education change over time,[1] which affects the incentive for individuals to participate. The purpose of the measures presented in this section is to provide indicators of changes in the rewards of investing in postsecondary education.

These indicators suggest some general conclusions. First, labor market opportunities for male college graduates were strong and did not vary downward during recession years. Consistently, over 90 percent of college graduate men were employed. On the other hand, the labor market opportunities of male high school graduates were more variable and seem to have drifted downward just slightly during the 1971–1990 period. The ratio of average annual earnings of college graduates to those of high school graduates provides an indication of the incentive to attend college. For white males 25–34 years old, the college premium increased from about 14 percent during the last half of the 1970s to about 43 percent in the last half of the 1980s. For black males the college premium was even larger. The earnings premium of college graduates in recent years (1985–1989) is at its highest levels of the 1975–1989 period.

Second, labor market opportunities for women, both high school graduates and those who attend college, grew enormously between 1971 and 1990. The proportion of females 25–34 years old with 4 or more years of college who were employed increased from 57 to 83 percent over the period. The proportion of high school graduate women employed grew from 43 to 68 percent over the same period. The earnings advantage enjoyed by college graduate women over their high school graduate counterparts was even larger than it was for men.[2] For white females 25–34 years old, the advantage was 89 percent in 1989. For black women it was 105 percent. These were the highest earnings premiums enjoyed by college women during the 1975–1989 period.

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[1] See Murphy, Kevin and Finis Welch. "Wage Premiums for College Graduates: Recent Growth and Possible Explanations." *Educational Researcher*, May 1989 for a more detailed presentation of changes between 1964 and 1986 in the relative earnings of workers with different levels of education and experience by sex and race.

While there is a great earnings premium for graduating from college, there are great differences among college graduates who chose different fields of study. Computer science and engineering majors earn the highest starting salaries—36 percent above the average across all fields among 1986 graduates. Education majors earn the lowest starting salaries—18 percent below the average. College students appear to be sensitive to these differences. The percentage majoring in engineering and computer science has increased from 9 to 17 percent between 1977 and 1986. The percentage majoring in education has fallen from 18 to 9 percent over the same period.[3]

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[2] However, women who are college graduates still earn less on average than their male counterparts.

[3] Changes in employment opportunities for teachers are affected by the changing enrollment of elementary and secondary school children. Between 1971 and 1984 enrollment declined but since has been rising slowly (*Indicator 1:17, The Condition of Education, 1991, Volume 1, Elementary and Secondary Education*).

Indicator 2:17 Starting salaries of college graduates

One of the factors college students use to choose a major is the pay they anticipate receiving for their work. Employers adjust what they pay new college graduates based on how valuable their skills will be to the firm and on the difficulty they have finding qualified individuals to fill the jobs. Differences across fields in starting salaries of college graduates provide indications of the fields which are more valuable to employers and the fields in which there are too few graduates compared to the requirements of employers. Changes over time in these differences can provide insights into the responsiveness of the education system and young people to changes in conditions in the labor market.

- **Engineering and computer science majors receive the highest starting salaries followed by those majoring in business. Education majors receive among the lowest starting salaries.**
- **Between 1980 and 1986, the premium earned by engineering and computer science and business majors fell. In 1980 natural science majors received starting salaries equal to those of all college graduates; in 1986 their starting salaries were 7 percent below the average.**
- **Between 1980 and 1986, differences in median starting salaries narrowed—for 6 of the 7 major field categories, the median starting salary in 1986 was closer to the median for all college graduates than it had been in 1980.**

Differences in median starting salaries of college graduates, by major field of study: Years of graduation 1977, 1980, 1984, and 1986

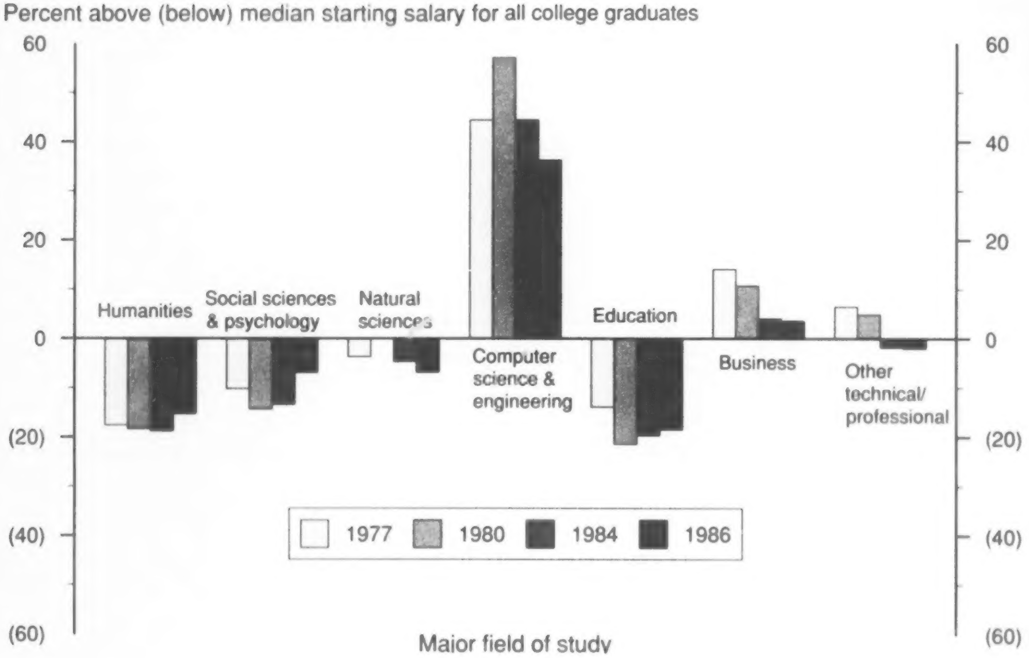
(Percent above or below the median starting salary for all college graduates)

	Year of graduation			
Major field	1977	1980	1984	1986
Humanities	-17.6	-18.3	-18.7	-15.1
Social and behavioral sciences	-10.2	-14.3	-13.3	-6.7
Natural sciences	-3.7	0.0	-4.6	-6.7
Computer science and engineering	44.4	57.1	44.5	36.3
Education	-13.9	-21.4	-19.7	-18.4
Business	14.1	10.7	4.0	3.6
Other technical/professional	6.5	4.9	-1.7	-1.9

NOTE: College graduates are defined here as baccalaureate degree recipients working full time and not enrolled 1 year after graduation.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Chart 2:17 **Differences in median starting salaries of college graduates, by major field of study: Years of graduation 1977, 1980, 1984, and 1986**



SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

E. Economic Outcomes

Indicator 2:18 Employment of young adults

The percentage of a population group with jobs is influenced by a variety of factors. Some influence the willingness of employers to offer jobs to individuals with different levels of education at the going wage rate, and others influence the willingness of these individuals to take jobs at the going wage rate. The higher the proportion employed, the better are their labor market opportunities relative to other things they could do, and vice versa.

- **Employment rates are generally higher for those with more education.**
- **During economic recessions (such as 1982–83), employment rates among males with 12 years of schooling or less fell more than they did for college graduates. The same was true, but to a lesser extent, for females with no college education.**
- **Among women 25–34 years old, the employment rate of those with 12 or more years of schooling increased by about 25 percentage points between 1971 and 1990 versus 9 percentage points for those with 9–11 years of schooling.**

Employment rate of 25- to 34-year-olds, by sex and years of schooling completed: 1971–1990

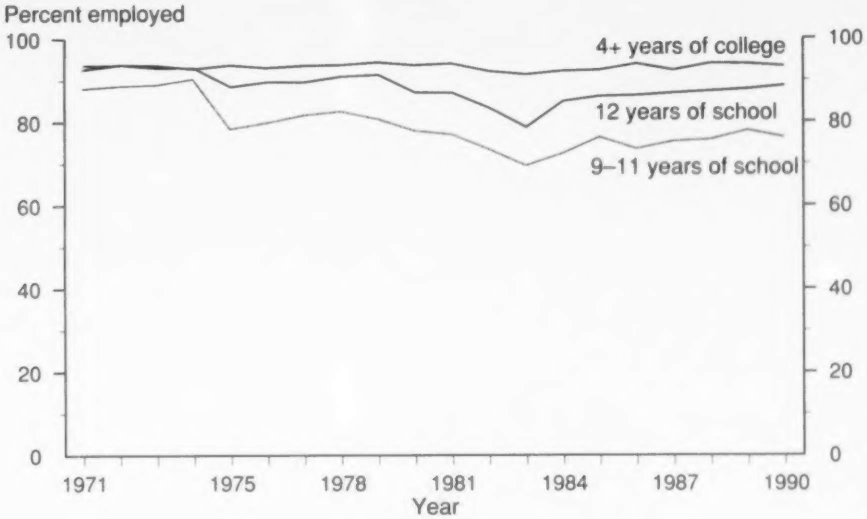
	Male				Female			
Year	9–11 years of school	12 years of school	1–3 years of college	4 or more years of college	9–11 years of school	12 years of school	1–3 years of college	4 or more years of college
					Percent			
1971	87.9	93.6	89.9	92.5	35.2	43.1	44.9	56.9
1972	88.5	93.7	90.4	93.6	36.1	44.9	47.4	59.8
1973	88.8	93.1	88.5	93.5	38.4	45.7	51.0	62.6
1974	90.2	93.0	90.0	92.7	39.8	47.6	54.2	66.6
1975	78.1	88.4	87.6	93.5	34.5	48.0	53.6	66.4
1976	79.6	89.6	89.0	92.8	39.5	49.8	56.5	68.8
1977	81.5	89.5	89.1	93.3	41.0	53.0	58.0	69.5
1978	82.4	90.8	91.2	93.5	42.4	55.9	63.3	72.1
1979	80.5	91.3	90.9	94.1	43.2	58.0	64.2	74.0
1980	77.7	87.0	88.5	93.4	45.6	59.5	66.3	75.5
1981	76.7	86.9	88.5	93.7	42.7	61.3	67.6	76.4
1982	73.2	83.3	85.2	91.9	39.7	59.6	68.2	77.7
1983	69.3	78.6	83.8	91.1	37.1	58.8	68.3	79.2
1984	72.2	84.8	87.9	91.9	41.5	61.0	69.5	80.4
1985	76.0	86.1	89.7	92.2	40.3	63.9	71.0	80.6
1986	73.3	86.2	89.0	93.7	44.1	63.8	70.6	80.3
1987	75.0	86.8	89.0	92.1	44.0	65.6	72.2	81.4
1988	75.5	87.2	89.8	93.7	46.9	66.8	74.8	81.2
1989	77.6	87.8	91.1	93.7	43.0	66.9	74.0	82.1
1990	75.9	88.6	89.7	93.1	44.3	67.5	74.5	83.2

NOTE: See supplemental note 2:18 for a comparison of the employment-to-population ratio, presented in this table, to other labor force statistics.

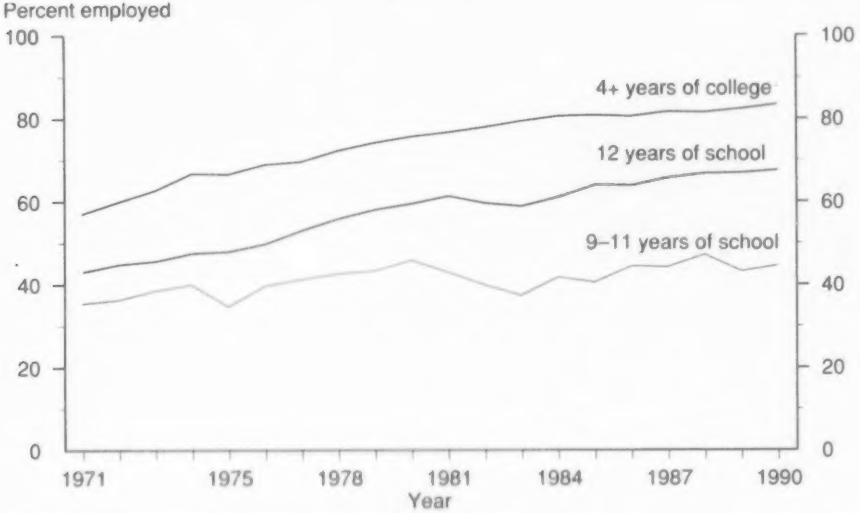
SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, various years, and unpublished tabulations based on the March Current Population Survey.

Chart 2:18 Percent of population 25–34 years old employed: 1971–1990

Male



Female



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, various years, and unpublished tabulations based on the March Current Population Survey.

Indicator 2:19 Annual earnings of young adults

Wages and salaries are influenced by many factors. Among these are the employer's perception of the productivity of employees with different levels of education and the availability of workers with different levels of education. Wages are also affected by economic conditions in the industries that typically employ workers with different levels of education. *Annual* earnings are influenced by the number of weeks worked in a year and the usual hours worked each week. The ratio of annual earnings of college graduates to high school graduates is affected by all these factors; it is a measure of the earnings advantage of finishing college.

- **In recent years (1985–89), the earnings advantage of college graduates 25–34 years old over their counterparts with only 4 years of high school was larger than it was in the last half of the 1970s; it was larger for blacks than for whites; and it was larger for females than for males.**
- **During the last half of the 1980s, the earnings advantage of college graduates was, on average, 43 and 54 percent for white and black males, respectively. For white and black females, the advantage was even larger—75 and 92 percent, respectively.**

Ratio of median annual earnings of wage and salary workers 25 to 34 years old with 9–11 and 16 or more years of school to those with 12 years of school, by sex and race/ethnicity: 1975–1989

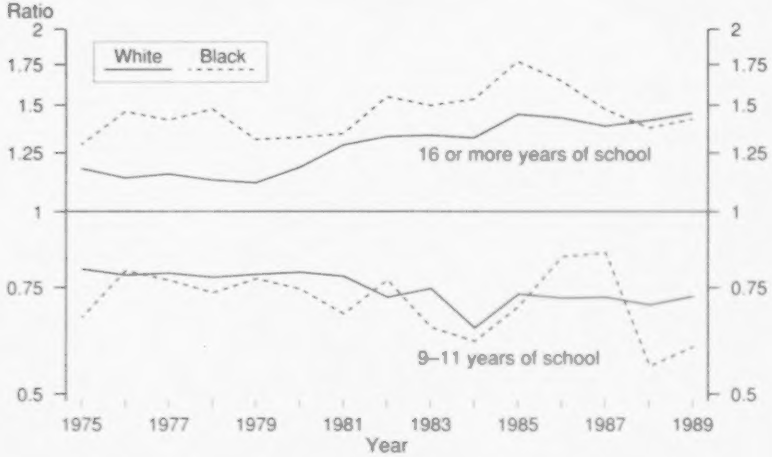
	9-11 years of school				16 or more years of school			
	Male		Female		Male		Female	
Year	White	Black	White	Black	White	Black	White	Black
1975	0.81	0.67	0.65	0.60	1.18	1.29	1.74	1.70
1976	0.79	0.80	0.61	0.58	1.14	1.41	1.61	1.58
1977	0.79	0.77	0.62	0.63	1.15	1.42	1.53	1.61
1978	0.78	0.74	0.55	0.48	1.13	1.48	1.58	1.38
1979	0.79	0.78	0.71	0.66	1.11	1.31	1.56	1.53
1980	0.80	0.75	0.63	0.73	1.18	1.33	1.54	1.65
1981	0.78	0.68	0.62	0.56	1.29	1.34	1.55	1.58
1982	0.72	0.77	0.66	0.69	1.33	1.55	1.61	1.65
1983	0.75	0.65	0.66	0.65	1.34	1.50	1.69	1.59
1984	0.64	0.61	0.58	0.52	1.32	1.53	1.59	1.68
1985	0.73	0.70	0.62	0.66	1.45	1.77	1.64	1.76
1986	0.72	0.85	0.62	0.78	1.43	1.64	1.74	1.92
1987	0.72	0.86	0.70	0.56	1.38	1.47	1.72	1.93
1988	0.70	0.56	0.53	0.62	1.41	1.37	1.78	1.93
1989	0.73	0.60	0.66	0.50	1.45	1.42	1.89	2.05

NOTE: The ratio is most usefully compared to 1.0. For example, the ratio of 1.45 in 1989 for white males with 16 or more years of school means that they earned 45 percent more than white males with 12 years of school. The ratio of 0.60 in 1989 for black males with 9–11 years of school means that they earned 40 percent less than black males with 12 years of school.

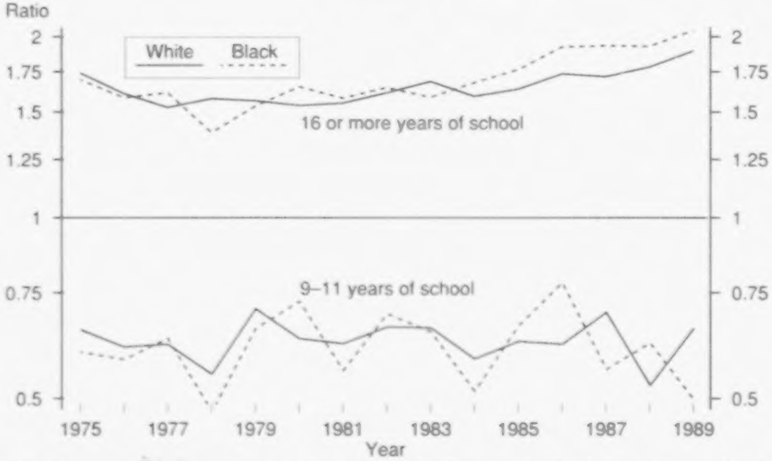
SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations from the March Current Population Survey.

Chart 2:19 Ratio of median annual earnings of wage and salary workers 25 to 34 years old with 9–11 and 16 or more years of school to those with 12 years of school, by sex and race/ethnicity: 1975–1989

Male



Female



NOTE: One on the scale represents earnings equal to those with 12 years of school; 2 represents double their earnings; .5 represents half their earnings. The scale on the graph makes the distance between 1 and 2, or doubling, the same as between 1 and .5, or halving.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations from the March Current Population Survey.

F. Output and Productivity of Colleges and Universities

The postsecondary education system is the primary source of advanced knowledge and skills for the economy and society. A degree awarded to an individual is an indication that the higher education system has helped make more knowledge and skill available in the economy and society. As such, the numbers of degrees conferred by level and field provide measures of the quantity and type of knowledge being produced by the system, as embodied in its graduates. The output of the higher education system depends on the inputs to the system as well as the productivity of the system. Undergraduate education depends on the number and quality of high school graduates; graduate education depends on the number and quality of college graduates. Not all of the produced knowledge stays in the United States. The higher education system trains and awards degrees to many foreign students; higher education today is an export industry. Research and development is an important activity in many higher education institutions and is another avenue through which higher education contributes new knowledge to the economy and society. About 10 percent of national R&D expenditures were made in higher education (doctoral degree granting) institutions in 1989 (*Indicator 2:22*). The federal government's share of the funding for these R&D expenditures has declined during the 1980s, while industry's share has increased.

Despite the fact that the number of high school graduates 20 to 24 years old has declined every year since 1983, the number of baccalaureate degrees awarded has grown each year (supplemental table 2:20-1).[1] The distribution of major fields, however, has been changing.[2] In general, the share of degrees in the humanities and sciences has fallen, and the share in professional fields has risen. The exception was education, whose share declined significantly. Between 1971 and 1988, the share of degrees in business and other technical/professional fields almost doubled, increasing from 24 percent in 1971 to 42 percent in 1988. On the other hand, the share of degrees in education fell from 22 percent to 9 percent. Most recently, there has been a turnabout. The share of degrees in the humanities and social sciences increased slightly between 1984 and 1988, and the share in computer sciences and engineering decreased slightly. The share of degrees in the natural sciences continued to fall.

In contrast to the slow growth of baccalaureate degrees, the number of associate degrees increased 81 percent between 1971 and 1983, but fell 5 percent between 1983 and 1989.

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[1] The share of baccalaureate degrees awarded to foreign students is small—3 percent in 1987.

[2] The following observations are based on *The Condition of Education, 1990, Volume 2, Postsecondary Education, Indicator 2:17.*

At the graduate level, master's degrees numerically are very important. In 1989, almost 310,000 master's degrees were awarded in contrast to 71,000 first-professional degrees and 36,000 doctoral degrees (supplemental table 2:20-1). Two-thirds of master's degrees are awarded in education, business, and other technical/professional fields.[3] In 1971 education accounted for 39 percent and business and other technical/professional fields for 24 percent of master's degrees. In 1988, that distribution essentially reversed—education accounted for 26 percent and business and other technical/professional fields for 42 percent of master's degrees.

The number of doctoral degrees changed very little during the last two decades when compared with changes in master's or first-professional degrees. The low for the 1971-to-1989 period was 32,107 in 1971; the high was 35,759 in 1989, an 11.4 percent increase. In fact, between 1985 and 1989 there has been an upward trend in doctoral degrees awarded. However, the share of these degrees awarded to U.S. citizens fell from 88.7 percent in 1977 to 78.5 percent in 1989.

The share of doctoral degrees in the natural sciences fell from 28.8 percent in 1971 to 22.5 percent in 1976. In 1988 it stood at 23.4 percent.[4] The precipitous decline between 1971 and 1976 has not continued. However, the share of those natural science doctoral degrees awarded to U.S. citizens has fallen. The U.S. citizen share stood at 86.3 percent in 1977, but by 1989 fell to 74.4 percent (supplemental table 2:21-1). The result was a 5.8 percent decline in the number of doctoral degrees in the natural sciences awarded to American students (supplemental table 2:21-2). In 1989 foreign students earned 47.1 percent of all doctoral degrees in computer science and engineering.

In contrast to the slow growth of doctoral degrees, the number of first-professional degrees, which includes law and medicine, grew enormously between 1971 and 1985—almost doubling. However, between 1985 and 1989 the number fell somewhat.

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[3] *The Condition of Education, 1990, Volume 2, Postsecondary education*, supplemental table 2:18-3.

[4] *The Condition of Education, 1990, Volume 2, Postsecondary education*, supplemental table 2:19-3.

F. Output and Productivity of Colleges and Universities

Indicator 2:20 Degrees conferred, by level

Trends in the number of degrees conferred, by level, provide clues to changes in the productivity of the Nation's higher education system, the allocation of resources within the system, and the level of trained individuals within the society. Viewed in relation to the number of high school and college graduates,* the data show whether degrees have lagged behind or exceeded growth in the eligible population.

- **The number of bachelor's degrees grew throughout the 1980s even though the number of high school graduates aged 20–24 declined every year after 1983.**
- **The number of associate degrees grew rapidly during the 1970s and early 1980s but declined in 5 of the 6 years between 1983 and 1989. The drop in associate degrees during the latter period was smaller than the decline in high school graduates aged 20–24 (5 versus 12 percent).**
- **During the 1971–89 period, the increase in the college graduate population aged 25–34 greatly exceeded the growth in the number of advanced degrees.**
- **Following years of negative or little growth, the number of doctor's degrees rose 9 percent between 1985 and 1989, reaching its highest-ever level in 1989. Despite the recent growth, doctor's degrees made up a smaller percentage of the 25- to 34-year old college graduate population in 1989 than they had in 1971.**

Percent change since 1971 in number of degrees and of high school and college graduates

	1975	1980	1985	1989
Associate degrees	42.6	58.7	80.0	72.3
Bachelor's degrees	9.9	10.7	16.6	21.2
Master's degrees	26.9	29.3	24.2	34.4
Doctor's degrees	6.2	1.6	2.6	11.4
First-professional degrees	47.4	84.8	97.8	86.5
High school graduates, aged 20–24	14.5	28.3	26.6	14.9
College graduates, aged 25–34	54.5	111.9	133.6	150.8

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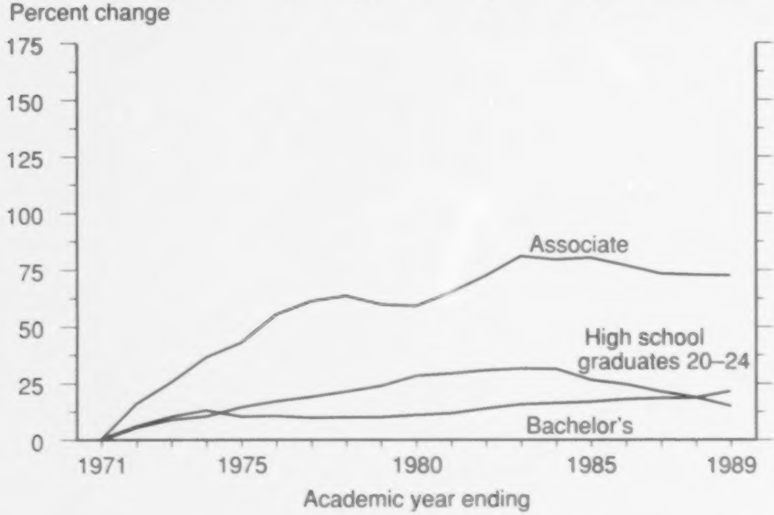
* High school graduates are defined here as those who have completed 12 or more years of schooling and college graduates as those who have completed 16 or more years.

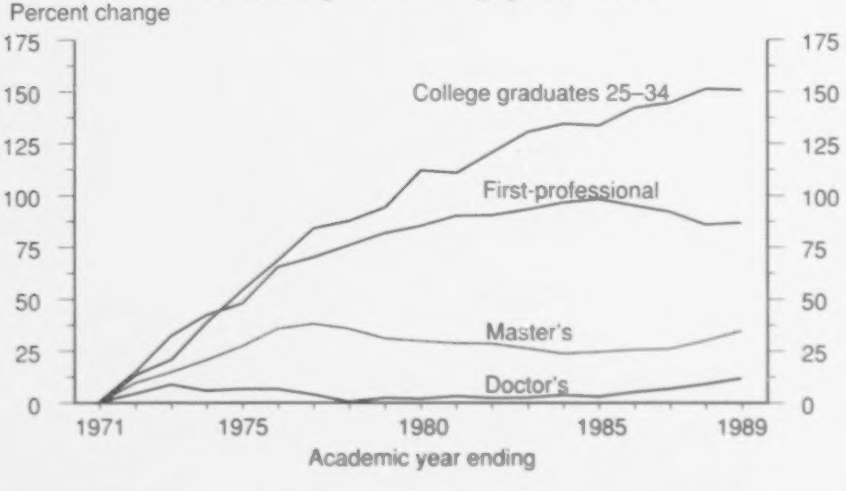
SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred; U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March.

Chart 2:20 Percent change since 1971 in number of degrees and number of high school and college graduates: Academic years ending 1971–1989

Associate and bachelor's degrees and high school graduates 20–24



Advanced degrees and college graduates 25–34



SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS survey of degrees conferred; U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March.

F. Output and Productivity of Colleges and Universities

Indicator 2:21 Graduate degrees earned by foreign students

Growth in the foreign student population can affect enrollment levels and, in turn, influence the amount and allocation of material, personnel, and financial resources. It may also signal potential problems for U.S. economic competitiveness, depending on changes in the number of Americans receiving degrees in critical fields and on whether the foreign students stay in this country to work after completing their studies.

- **Between 1977 and 1989, foreign students earned an increasing proportion of the graduate degrees awarded by American colleges and universities. In 1989, they earned 11 percent of the master's degrees and 22 percent of the doctor's degrees.**
- **The proportion of doctor's degrees earned by foreign students increased in all fields between 1977 and 1989. Growth was greatest in mathematics. By 1989, foreign students were earning nearly one-half of the doctorates conferred in mathematics and in engineering.**
- **The number of foreign students earning doctorates increased more than 100 percent during the 1977–89 period, whereas the number of Americans earning such degrees declined 5 percent. The decline in American doctorate recipients occurred during a period of growth (36 percent) in the 25- to 34-year old college graduate population. Although the number of American recipients has increased since 1985, growth has been slower than growth in the number of college graduates aged 25–34.**
- **Of the foreign students earning doctorates in the natural and computer sciences and engineering in 1989, 39 percent had definite postgraduate plans in the United States, 15 percent for employment and 24 percent for further study.**

Doctor's degrees earned by foreign and American students: 1977 and 1989

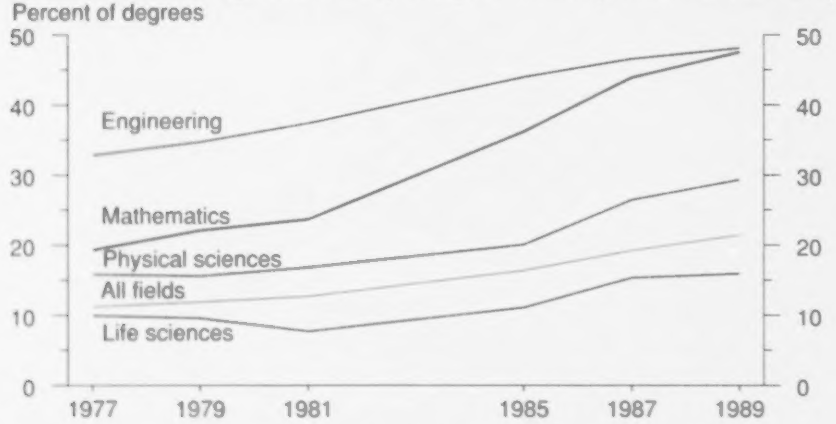
	Percent earned by foreign students		Percent change in number of degrees, 1977–1989	
Field of study	1977	1989	Foreign students	American students
All fields	11.3	21.5	105.0	-4.6
Humanities and social/behavioral sciences	7.4	12.9	59.0	-14.4
Natural sciences	13.7	25.6	104.9	-5.8
Life sciences	10.1	16.0	65.8	-2.9
Physical sciences	15.9	29.4	112.8	-3.1
Mathematics	19.4	47.6	162.5	-30.3
Computer sciences and engineering	32.0	47.1	167.8	41.3
Computer and information sciences	20.8	38.1	355.6	94.7
Engineering	32.9	48.2	157.9	36.0
Technical/professional	8.7	15.4	87.7	-2.0

NOTE: Foreign students are non-United States citizens holding temporary U.S. visas. American students include non-United States citizens with permanent U.S. visas.

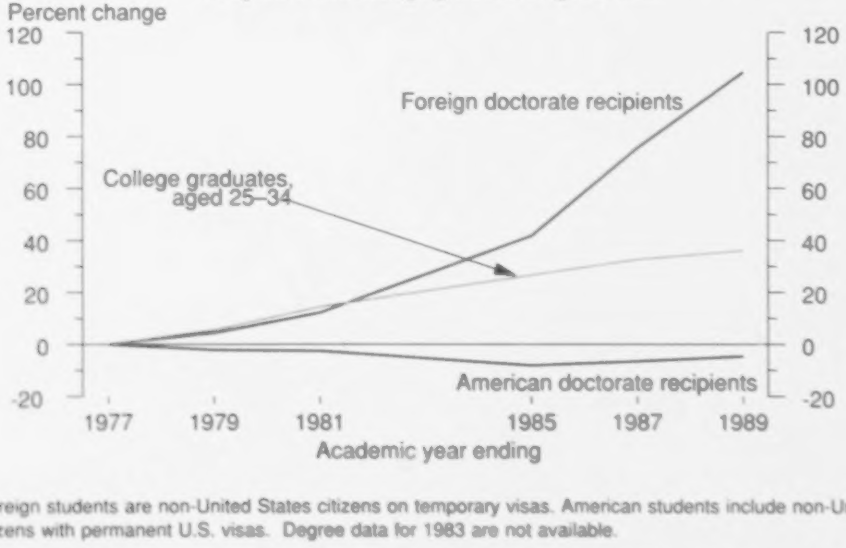
SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred; U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March; National Research Council, Survey of Earned Doctorates.

Chart 2:21 Doctor's degrees earned by foreign and American students: Selected academic years ending 1977–1989

Percent of doctor's degrees earned by foreign students, by selected field of study



Percent change since 1977 in number of foreign and American doctorate recipients and college graduates aged 25–34



NOTE: Foreign students are non-United States citizens on temporary visas. American students include non-United States citizens with permanent U.S. visas. Degree data for 1983 are not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred. U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March.

F. Output and Productivity of Colleges and Universities

Indicator 2:22 Higher education spending on research and development

The Nation's institutions of higher education are an important source of new scientific and technological knowledge. Research and development expenditures at doctorate-granting institutions provide one measure of higher education's contribution to that knowledge.

- **Constant dollar R&D expenditures at doctorate-granting institutions increased each year between 1974 and 1989. The highest, most sustained growth occurred during the mid- to late-1980s.**
- **In the first half of the 1980s, R&D expenditures at doctorate-granting institutions declined relative to national R&D expenditures. The downward trend ended in 1984, and since 1985, doctorate R&D has grown as a percent of national R&D. In 1989, the ratio of doctorate to national R&D was at its highest level for the 1972–1989 period.**
- **Federal funds are by far the most important source of R&D expenditures at doctorate-granting institutions. However, these funds declined relative to other sources during the 1972–89 period. While funds from all sources increased in constant dollars over the period, federal funds grew much more slowly than funds from industry and from institutional resources.**

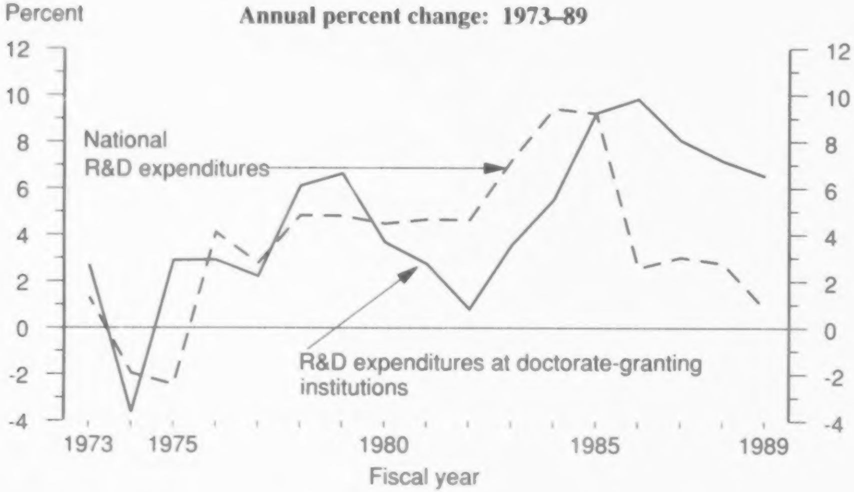
Research and development expenditures: Selected fiscal years 1972–1989

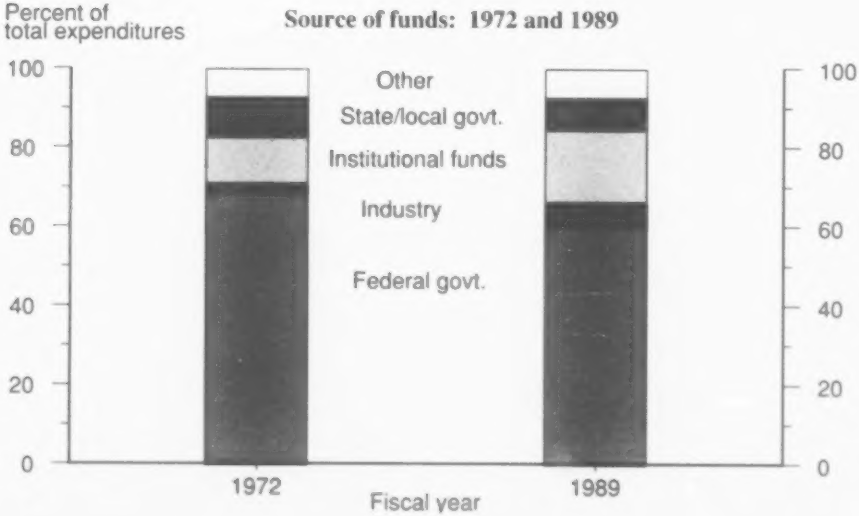
	At doctorate-granting institutions							Total national	
			Source of funds (Percentage distribution)						
Fiscal year	As percent of national R&D	Annual percent change (Constant dollars)	Federal government	State/local government	Industry	Institutional funds	Other	As percent of GNP	Annual percent change (Constant dollars)
1972	9.0	—	68.3	10.2	2.8	11.6	7.1	2.4	—
1974	9.0	-3.6	67.4	10.0	3.2	12.3	7.2	2.2	-1.9
1976	9.4	2.9	67.4	9.7	3.3	11.9	7.6	2.2	4.1
1978	9.4	6.1	66.2	8.9	3.7	13.4	7.8	2.1	4.9
1980	9.5	3.7	67.6	8.1	3.9	13.8	6.7	2.3	4.5
1982	9.0	0.8	65.1	8.4	4.6	15.3	6.7	2.5	4.7
1984	8.4	5.5	62.9	8.0	5.5	16.5	7.1	2.7	9.4
1986	9.0	9.9	61.3	8.4	6.4	17.2	6.7	2.8	2.6
1988	9.8	7.2	60.7	8.2	6.4	17.6	7.0	2.8	2.8
1989	10.4	6.6	59.9	8.2	6.5	18.2	7.2	2.7	0.8

— Not calculated; 1972 is the base year.

SOURCE: National Science Foundation, surveys of R&D expenditures in government, industry, higher education institutions, and other sectors, various years.

Chart 2:22 Research and development (R&D) expenditures at doctorate-granting institutions





SOURCE: National Science Foundation, surveys of R&D expenditures in government, industry, higher education institutions, and other sectors, various years.

II. Context

G. Size and Growth

College enrollment increased substantially during the late 1960s and 1970s as the post-World War II baby boomers came of college age. Enrollment increased by one-third in the 5 years between 1967 and 1972.[1] It increased another one-third between 1972 and 1981, at which time those born at the peak of the baby boom (1957) would be finishing college (supplemental table 2:23-1). However, between 1983 and 1985, as the size of the traditional college-going age group began to decline, enrollment declined only slightly (supplemental table 2:23-4). This was due to: (1) higher enrollment rates among 16- to 24-year-olds and (2) higher enrollment rates among females 25-34 years old.[2] Between 1985 and 1989, total enrollment was rising again. The number of first-time freshmen is a leading indicator of future enrollment. The number of first-time freshmen at 4-year colleges drifted downward during most of the 1980s.[3] However, in 1988 it increased to its highest level during the 1980s but in 1989 fell back slightly.

Between 1972 and 1989, enrollment increased in all sectors of higher education, but it increased the most in public 2-year colleges. Their share of total enrollment increased from 29 to 36 percent during the period. In contrast, public 4-year institutions' share of enrollment dropped from 48 percent in 1972 to 42 percent in 1989.

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[1] U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "School Enrollment . . .," various years.

[2] *The Condition of Education, 1990*, Volume 2, Postsecondary Education, *Indicator 2:2*.

[3] U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, Table 165; IPEDS, 1989 "Fall Enrollment" survey.

Indicator 2:23 College and university enrollment, by type and control of institution

Colleges and universities offering 2- and 4-year programs under public and private control address somewhat different student needs. Fluctuations in enrollment trends may indicate, among other things, changes in student interest in the various kinds of services offered, changes in the cost of attendance, and changes in the availability of student financial aid.

- **Enrollment in higher education increased 46 percent between 1972 and 1989. Following a decline in the mid-1980s, enrollment rose each year after 1985, despite a substantial decline in the number of high school graduates aged 20–24.**
- **Since 1972, with the exception of a brief period in the early to mid-1980s, enrollment in public 2-year institutions has grown at a faster rate than enrollment in 4-year institutions, public or private. These differences in growth rates were especially large during the 1970s.**
- **The share of students enrolled in different types of institutions changed somewhat in the 1970s. Public 2-year institutions increased their share, from 29 to 36 percent, mainly at the expense of public 4-year institutions. Institutional shares remained stable during the 1980s.**
- **In 1989 as in 1972, public institutions accounted for over three-fourths of higher education enrollment.**

Enrollment in higher education, by type and control of institution, and high school graduates, by age: Selected years 1972–1989

	Percent change since 1972				Percent of total enrollment		
Year	1975	1980	1985	1989	1972	1980	1989
Enrollment:							
All institutions	21	31	33	46	100	100	100
Public, 4-year	13	16	18	29	48	42	42
Public, 2-year	45	64	62	83	29	36	36
Private, 4-year	9	20	24	32	22	20	20
Private, 2-year	(*)	(*)	(*)	(*)	1	2	2
High school graduates:							
20–24	9	22	20	9	—	—	—
25–34	19	53	73	83	—	—	—

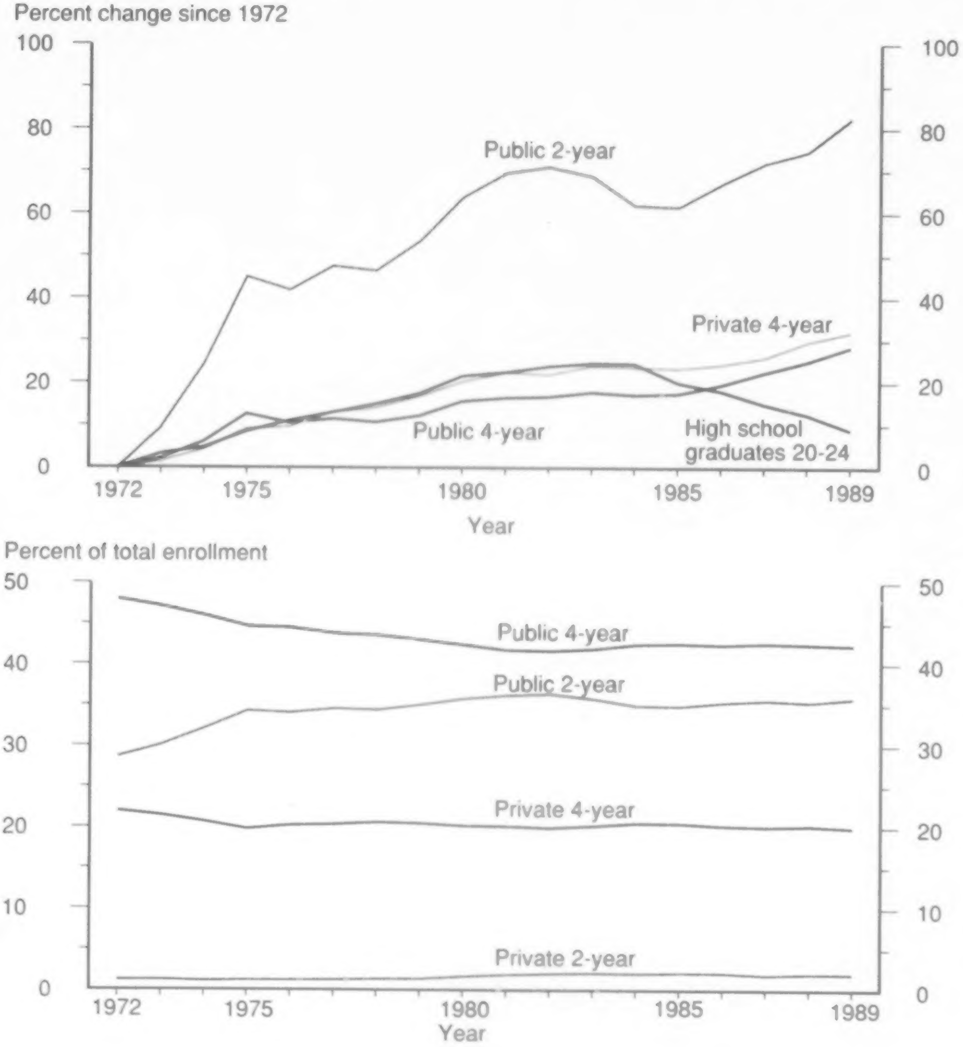
— Not applicable.

* Not shown; see table 2:23-2 for explanation.

NOTE: Data for 1989 are preliminary.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of fall enrollment, various years. U.S. Department of Commerce, Bureau of the Census, March Current Population Survey.

Chart 2:23 Higher education enrollment, by type and control of institution, and high school graduates aged 20–24: Fall 1972–fall 1989



SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of fall enrollment, various years. U.S.Department of Commerce, Bureau of the Census, March Current Population Survey.

H. Student Characteristics

The characteristics of postsecondary students are not static. As they change, the types and quantity of services provided by colleges and universities also may change to meet the needs of different types of students.

Between 1976 and 1988, the racial and ethnic makeup of college students changed somewhat. The proportion of students who were white and non-Hispanic fell 3.8 percentage points as the proportion from minority groups increased (*Indicator 2:24*). However, the increase was not uniform among the various minority groups. The proportion of students who were black and non-Hispanic fell slightly, from 9.4 to 8.7 percent. The largest relative increase was among Asians, whose representation more than doubled from 1.8 to 3.8 percent of college students. The representation of Hispanic students also increased from 3.5 to 5.2 percent of college students. These changes were general, occurring in public as well as private, in 2-year as well as 4-year colleges and universities.

The types of institutions in which various racial and ethnic groups tend to enroll vary. For instance, in 1988, there were 1.2 black students for every Hispanic enrolled in 2-year colleges, but 2.2 black students for every Hispanic enrolled in a 4-year college (supplemental table 2:24-1). Much of this difference may be attributable to differences in the geographic distribution of the black and Hispanic populations in the United States. There is a high concentration of Hispanics in California, a state with a very large 2-year college system.

In 1988, fewer Asians students were in public higher education than blacks or Hispanics—406,000 Asians compared to 881,000 non-Hispanic blacks and 587,000 Hispanics. However, enrollment of Asians was equal to Hispanics in private and 4-year institutions, and was substantially less than Hispanics in public and 2-year institutions (supplemental table 2:24-1).

The proportion of higher education students who are foreign, that is, nonresident aliens, increased from 2.0 to 2.8 percent between 1976 and 1988. These students were concentrated in private colleges—4.3 percent of private college enrollment compared to 2.3 percent of public college enrollment—and in 4-year colleges—3.7 percent of 4-year college enrollment compared to 1.2 percent of 2-year college enrollment.

As the post-World War II baby boom cohorts grew older and the "baby bust" cohorts that followed them reached college age, the age distribution of college students changed. In 1989, 12 percent of undergraduates were 35 years old or over, up from 8 percent in 1976. Only 54 percent of undergraduates were 21 years old or under in 1989, down from 62 percent in 1976 (*Indicator 2:25*). These demographic trends have affected both 4-year and 2-year colleges. For example, in 1989, 9 percent of

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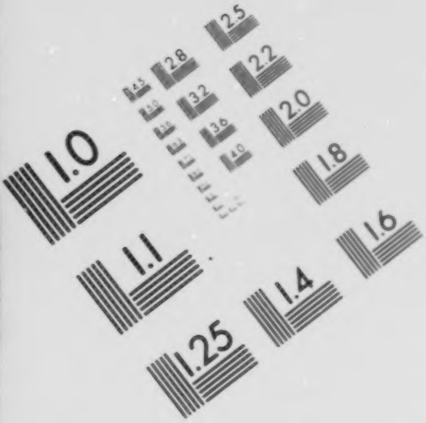
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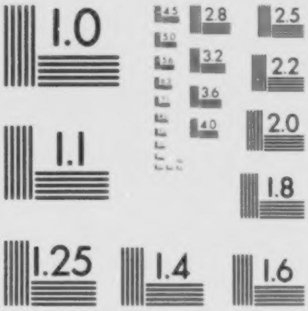
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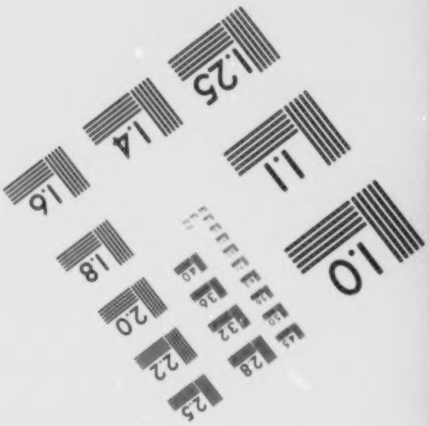
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undergraduates at 4-year colleges were 35 years old or over, up from 5 percent in 1976; in 1989, 59 percent were 21 or younger, down from 69 percent in 1976 (supplemental table 2:25-1).

In the mid-1970s, about 22 percent of undergraduates 16-34 years old indicated they attended part-time (supplemental table 2:25-8). That increased to 25 percent in 1977, and had not changed appreciably by 1989, when 26 percent indicated they attended part-time. Students attending 2-year colleges are more likely to attend part time than students attending 4-year colleges. However, students 25-34 years old, whether attending 2-year or 4-year colleges, are more likely to attend part-time than students 16-24 years old.

Graduate students are also more likely to attend part-time. They accounted for 16 percent of all students 16-34 years old in 1989 (supplemental table 2:25-9). In the absence of other changes, as the baby boom cohort ages, the graduate student share of total enrollments is expected to decline.

In summary, the likelihood that a college student would be over 25 or enrolled part time was higher in the 1980s than it was in the 1970s. Also, the percentage of Asian and Hispanic students increased somewhat.

Indicator 2:24 Racial/ethnic distribution of college students

Changes in the racial/ethnic mix of college enrollment suggest changes in the needs, interests, and backgrounds of the student body. They thus provide clues to the need to alter student programs and services.

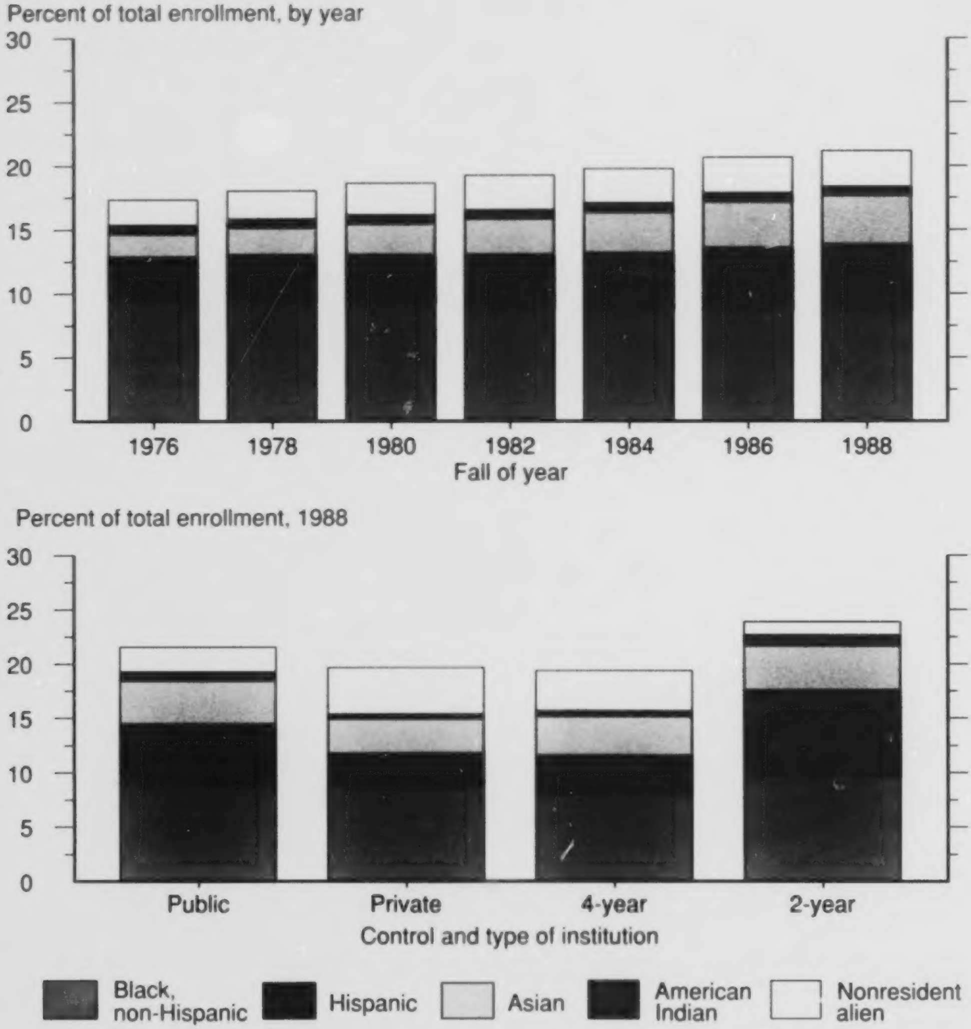
- **Between 1976 and 1988, the college student body became somewhat more heterogeneous. Minority students increased from 15 to 18 percent and nonresident aliens from 2 to 3 percent of total enrollment.**
- **As a percent of college students, blacks declined slightly whereas Hispanics and Asians increased in the 1976–88 period. In 1988, blacks made up 9 percent, Hispanics 5 percent, Asians 4 percent, and American Indians 1 percent of enrolled students.**
- **Minority students made up a higher proportion of the student body at 2-year than at 4-year institutions (23 vs. 16 percent in 1988) and at public than at private institutions (19 vs. 15 percent in 1988).**

Percent of total enrollment, by race/ethnicity: Selected years 1976–1988

Year and type and control of institution	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian	American Indian	Nonresident alien
			All institutions, by year			
1976	82.6	9.4	3.5	1.8	0.7	2.0
1980	81.4	9.2	3.9	2.4	0.7	2.5
1984	80.2	8.8	4.4	3.2	0.7	2.7
1986	79.3	8.7	4.9	3.6	0.7	2.8
1988	78.8	8.7	5.2	3.8	0.7	2.8
			By type and control of institution: 1988			
Public	78.4	8.7	5.8	4.0	0.8	2.3
Private	80.3	8.6	3.2	3.2	0.4	4.3
4-year	80.5	8.0	3.6	3.6	0.5	3.7
2-year	76.0	9.7	7.9	4.1	1.0	1.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of fall enrollment, various years.

Chart 2:24 **Percent of total enrollment in institutions of higher education, by race/ethnicity**



SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of fall enrollment in postsecondary and higher education, various years.

Indicator 2:25 Age of undergraduate college students

Students may be older if they are coming back to college to learn new skills for a new career or if, for a variety of reasons, they were not able to attend or complete college during the traditional college attendance ages. Older college students are more likely to have full-time jobs and family responsibilities. Thus, they are more likely to attend part-time and to live off-campus. To serve the needs of older students colleges may offer more evening classes and classes that meet only once a week.

- **In 1989, 12 percent of undergraduates were 35 years old or over, up from 8 percent in 1976. Among part-time undergraduates, the share increased from 23 to 29 percent between 1976 and 1989.**
- **Only 54 percent of undergraduates were 21 years old or under in 1989, down from 62 percent in 1976.**
- **In 1989, 71 percent of full-time students were 21 years old or under, but only 17 percent of part-time students were. In contrast, 29 percent of part-time students were 35 years old or over compared to 5 percent of full-time students.**
- **About 1 in 4 undergraduate students 16-34 years old attends part-time. This rate increased from 20 percent in 1973 to 25 percent in 1977 and since has changed very little (supplemental table 2:25-8).**

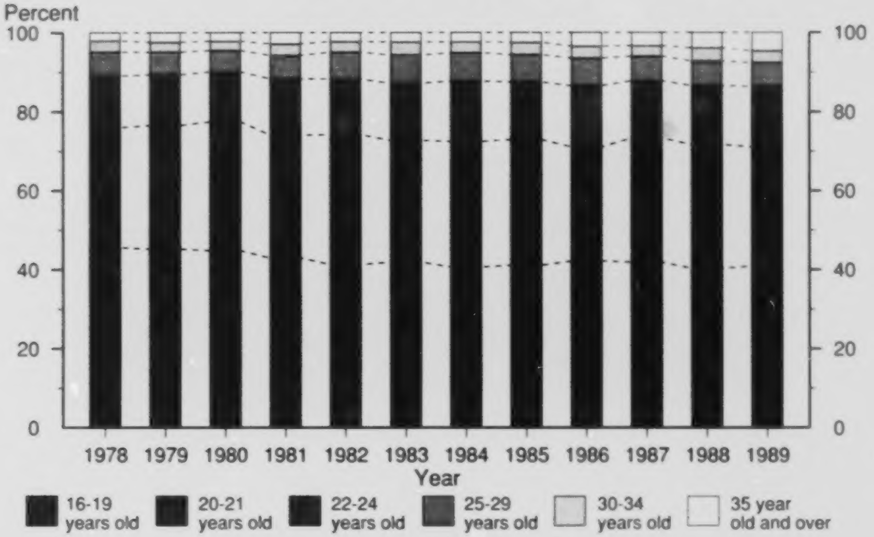
Age distribution of undergraduate students 16 years old and over, by attendance status: 1976 and 1978–1989

Year	Total			Full time			Part time		
	16-21 years old	22-34 years old	35 yrs old and over	16-21 years old	22-34 years old	35 yrs old and over	16-21 years old	22-34 years old	35 yrs old and over
1976	62.0	30.0	7.9	76.6	21.3	2.1	23.5	53.2	23.3
1978	60.7	30.7	8.7	76.0	21.9	2.1	24.0	51.6	24.5
1979	59.5	30.8	9.7	76.6	21.0	2.5	20.7	53.3	26.1
1980	60.3	31.6	8.1	77.5	20.3	2.2	20.4	57.7	21.9
1981	58.2	32.9	8.8	74.1	23.0	2.9	21.5	55.9	22.6
1982	58.9	33.0	8.1	74.2	23.6	2.3	22.9	55.2	21.9
1983	57.2	33.9	8.9	72.7	24.9	2.4	21.5	54.6	23.8
1984	57.5	34.2	8.3	72.4	25.2	2.4	21.4	55.9	22.7
1985	57.1	33.4	9.5	73.0	24.5	2.5	20.3	54.0	25.7
1986	54.3	35.1	10.6	71.1	25.4	3.5	18.7	55.6	25.9
1987	57.0	32.6	10.4	73.3	23.3	3.4	23.6	51.5	24.9
1988	55.4	32.7	11.9	71.7	24.4	3.9	20.1	50.6	29.3
1989	54.2	33.6	12.2	71.0	24.3	4.7	17.3	53.9	28.8

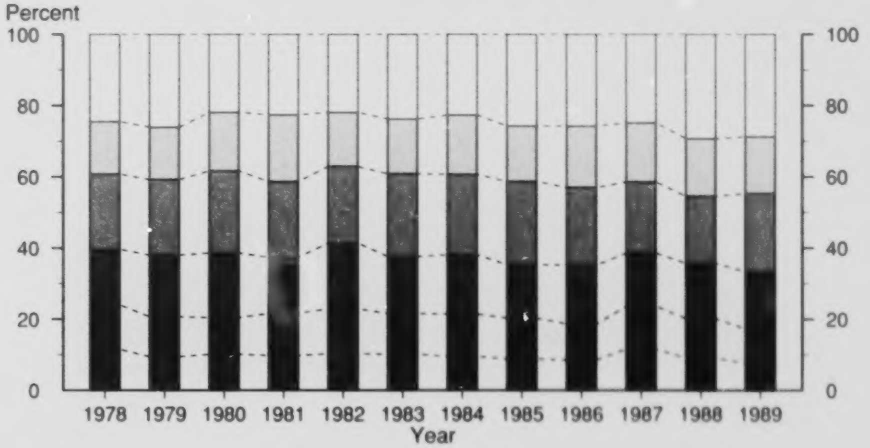
SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment...," various years; October Current Population Survey.

Chart 2:25 **Age distribution of undergraduate students 16 years old and over, by attendance status: 1978–1989**

Full-time undergraduates



Part-time undergraduates



SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment...," various years; October Current Population Survey.

III. Resources

I. Fiscal Characteristics

The 1980s presented many fiscal challenges to colleges and universities. Enrollment growth slowed and it shifted toward part-time enrollment. After the high inflation years of the late 1970s, colleges found that their expenses had increased faster than their tuition charges. The federal budget deficit grew, which led to added scrutiny of all federal programs. In contrast, the 1980s started with a recession, but eventually were characterized by low inflation and moderate growth.

In this context, colleges and universities increasingly relied on tuition and fees as a source of revenue. In 1980, tuition and fees were 16 percent of all revenues at public colleges and universities; by 1987, they had increased to 19 percent. At private, nonprofit colleges and universities in 1980, the share of revenues from tuition and fees was 52 percent; by 1987, 57 percent (computed from supplemental table 2:26-2).

Spending per student increased moderately in public institutions during the 1980s, increasing 8 percent in universities and 4 percent in other 4-year and 2-year institutions from 1980 to 1987. In private institutions spending per student increased more—27 percent in universities and 19 percent in other private 4-year colleges.

Increases in tuition charges grew faster than expenditures during the 1980s. Among public institutions, tuition charges increased 26 percent at universities and 19 percent at 2-year colleges between 1980 and 1987. Among private institutions the increases were larger—36 percent at universities and 30 percent at other 4-year colleges (*Indicator 2:27*). Off-setting some of the increases in tuition were increases in institutionally-based scholarships and fellowships. These expenditures increased 19 percent at public universities, but fell slightly at other 4-year public colleges. At public institutions, 16 percent of undergraduates received institutional aid in 1986-87 (*Indicator 2:28*). Expenditures for scholarships and fellowships increased 50 percent at private universities and 47 percent at other 4-year private colleges. At private, nonprofit colleges and universities, 49 percent of undergraduates received institutional aid in 1986-87.

Most students attending postsecondary institutions receive some financial aid (*Indicator 2:28*). When students use financial aid to pay tuition charges, the aid represents revenue to the institution (when the financial aid is from federal or state sources). At public institutions, 40 percent of undergraduates received aid from federal sources in 1986-87. At private, nonprofit institutions 56 percent of undergraduates received aid from federal sources; at proprietary institutions, 82 percent of students receive aid from federal sources.

Indicator 2:26 Revenues of colleges and universities

There are more than 3,000 colleges and universities in this country—from community colleges to liberal arts colleges to professional schools to research universities. About 1,500 of these institutions are governed by localities or by states primarily to serve their populations. Some 1,800 more are under private control, some religious and some independent. All institutions of higher education are supported by the same array of funding sources, but to widely varying degrees, depending upon whether they are publicly or privately controlled. These sources in turn are affected by a number of factors, including fluctuations in the economy and perceptions of whether investments, be they in the form of taxes, gifts, or tuition payments, are yielding expected benefits—to individuals or to the country.

- **In 1987, state and local appropriations were the largest source of funds for public institutions (57 percent) but a negligible source (1 percent) for private institutions.**
- **Private institutions depend primarily on tuition and fees as a source of revenue—57 percent in 1987.**
- **In 1987, revenues from tuitions and fees for all colleges were more than 50 percent greater (in constant dollars) than in 1976. The share of revenues from tuition and fees was 31 percent, up from 27 percent in 1976. Revenues from state and local appropriations increased only 20 percent (computed from supplemental table 2:26-2).**

Percentage distribution of general education revenues of higher education, by type and control of institution and source of revenue: Fiscal year 1987

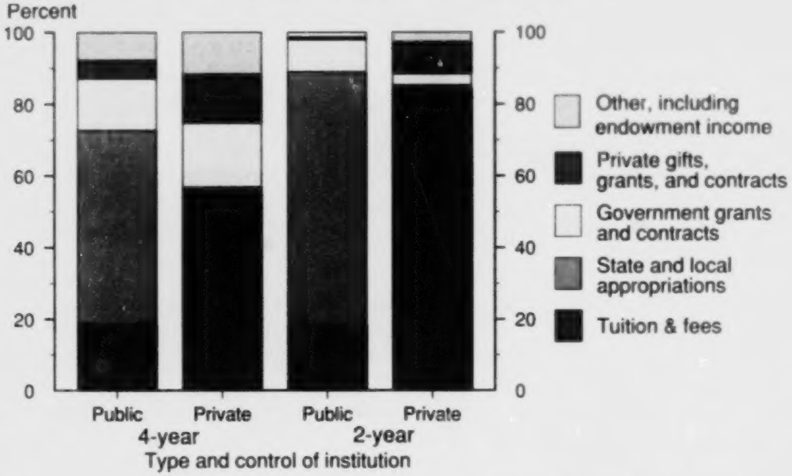
Sources of revenues	Type of institution All	 4-year	 2-year
		Public institutions	
Total	100.0	100.0	100.0
Tuition & fees	18.7	18.7	18.5
Federal appropriations	2.6	3.1	0.7
State & local appropriations	57.3	54.0	70.5
Federal grants & contracts	10.2	11.7	4.1
State & local grants & contracts	3.1	2.7	4.8
Private gifts, grants, contracts	4.2	5.1	0.6
Endowment income	0.6	0.8	0.1
Sales & services of educational activities	3.2	3.9	0.6
		Private institutions	
Total	100.0	100.0	100.0
Tuition & fees	56.6	55.5	84.3
Federal appropriations	0.8	0.8	0.4
State & local appropriations	1.3	1.4	0.9
Federal grants & contracts	14.6	15.1	1.0
State & local grants & contracts	2.8	2.8	2.2
Private gifts, grants, contracts	13.3	13.5	8.9
Endowment income	7.4	7.6	1.6
Sales & services of educational activities	3.2	3.3	0.7

NOTE: See supplemental note 2:26 for information on the sources of revenue excluded from the totals.

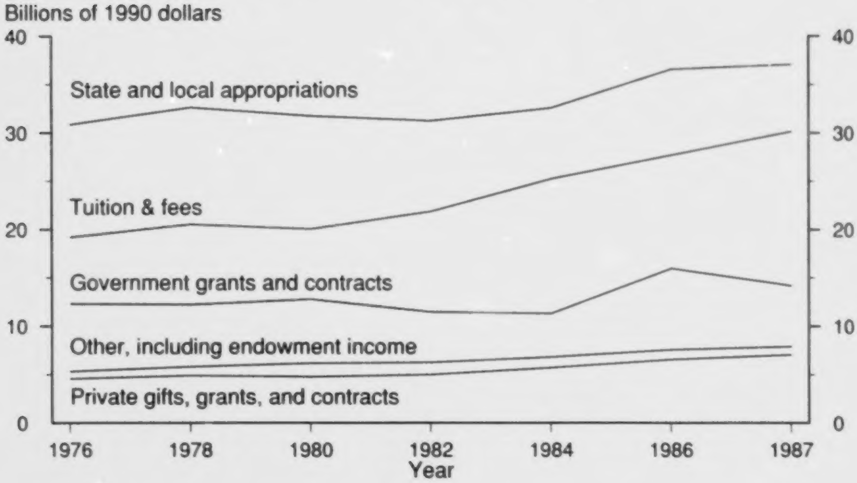
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, tables 291, 292, and 293; 1987 IPEDS Financial Statistics survey.

Chart 2:26 Sources of general education revenues for institutions of higher education, by type and control of institution: Selected fiscal years 1976 to 1987

By type and control for 1987



All institutions of higher education



SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, tables 291, 292, and 293; 1987 IPEDS Financial Statistics survey.

Indicator 2:27 Allocation of expenditures per student and tuition levels

Rising college tuition is of considerable concern to policymakers, educators, students and their families. Why tuition continues to climb is a hotly debated subject. Information on where colleges and universities spend their money and how expenditure patterns have changed in relation to tuition enhances the public debate.

- **At public universities, between 1977 and 1987, tuition charges and expenditures per full-time-equivalent (FTE) student for administration and research increased about 20 percent (in constant dollars) while expenditures per FTE student for instruction increased 9 percent.**
- **At private universities, tuition charges increased 34 percent while expenditures for instruction increased 30 percent. Expenditures for administration and for institutionally based scholarships increased about 47 percent (supplemental table 2:27-2).**
- **At public universities during the 1986–87 academic year, expenditures per full-time equivalent student for instruction were slightly higher than they were the previous year. At other public 4-year colleges they were slightly lower. Expenditures for administration showed a larger increase at public 2-year colleges than at other public institutions (supplemental table 2:27-1). Tuition charges showed a similar pattern of slight increases or decreases in public institutions.**

Indices of selected expenditures per full-time-equivalent student and average undergraduate tuition charges (in constant dollars) at public and private universities: Academic years ending 1977–1987 (1977=100)

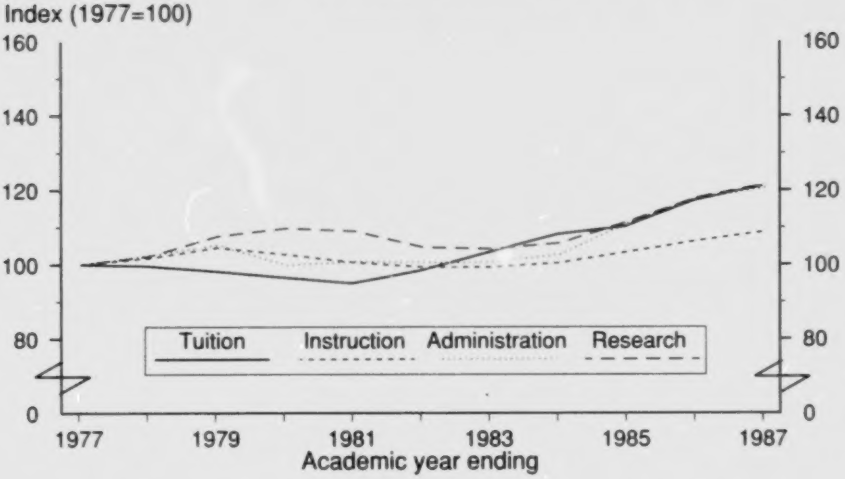
	Public universities				Private universities			
		Expenditures				Expenditures		
	Tuition charges	Instruction	Administration	Research	Tuition charges	Instruction	Administration	Research
1977	100	100	100	100	100	100	100	100
1978	100	102	102	102	100	99	100	98
1979	98	104	105	108	99	98	106	98
1980	96	103	100	110	99	101	108	99
1981	95	100	101	109	100	103	108	96
1982	98	99	100	104	104	104	106	91
1983	103	99	100	104	112	106	115	87
1984	108	100	103	106	118	111	126	92
1985	110	103	111	111	123	113	127	97
1986	117	106	118	118	127	117	133	103
1987	121	109	120	121	134	130	147	112

NOTE: The Higher Education Price Index is used to convert expenditures to constant dollars.

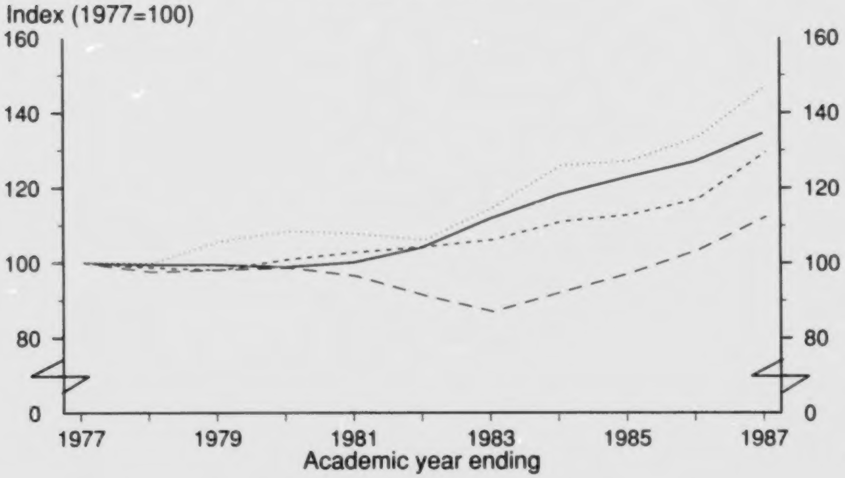
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, tables 34, 304, 307; 1987 IPEDS Financial Statistics and Fall Enrollment surveys.

Chart 2:27 **Indices of selected expenditures per full-time-equivalent student and average undergraduate tuition charges (in constant dollars) at public and private universities: Academic years ending 1977–1987**

Public universities



Private universities



SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, tables 34, 304, 307; 1987 IPEDS Financial Statistics and Fall Enrollment surveys.

Indicator 2:28 Student financial aid, by type and control of institution and degree level

Student financial aid is important to postsecondary institutions because it enhances their ability to serve students from all types of economic backgrounds. This indicator shows the proportion of undergraduate and graduate students enrolled in different types of institutions in the fall of 1986 who received aid from various sources.

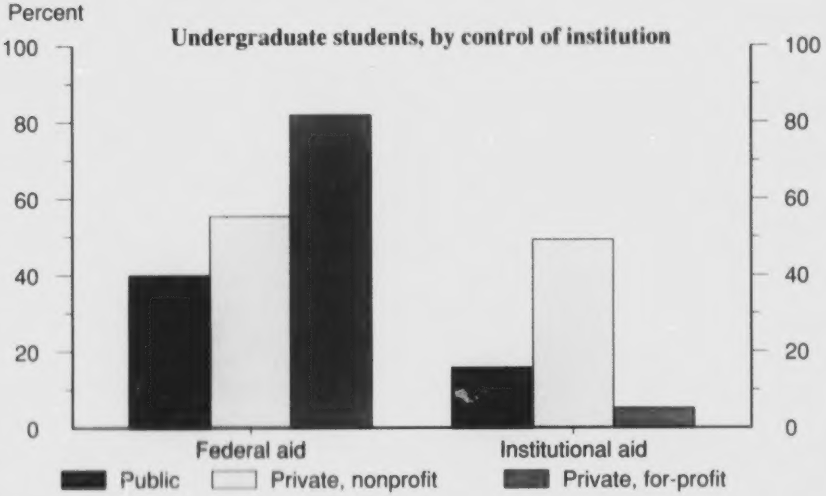
- **Six out of 10 undergraduates enrolled full-time received some form of student financial aid in fall 1986. The proportion receiving aid was higher in private institutions, particularly in those operated for profit, than in public institutions.**
- **Federal aid was the most common source of aid among full-time undergraduate students, especially among those enrolled in private, for-profit institutions.**
- **Among full-time undergraduates, institutional aid was much more common among those enrolled in private, nonprofit institutions than it was among those enrolled in other types of institutions.**
- **Nearly three-fourths of full-time postbaccalaureate students received student financial aid. Institutional aid was the most common source at the master's and doctor's degree levels, and federal aid was the most common source at the first-professional degree level.**
- **A substantial proportion of part-time students received student financial aid: nearly 3 out of 10 at the undergraduate level and close to 4 out of 10 at the postbaccalaureate level (supplemental table 2:28-2).**

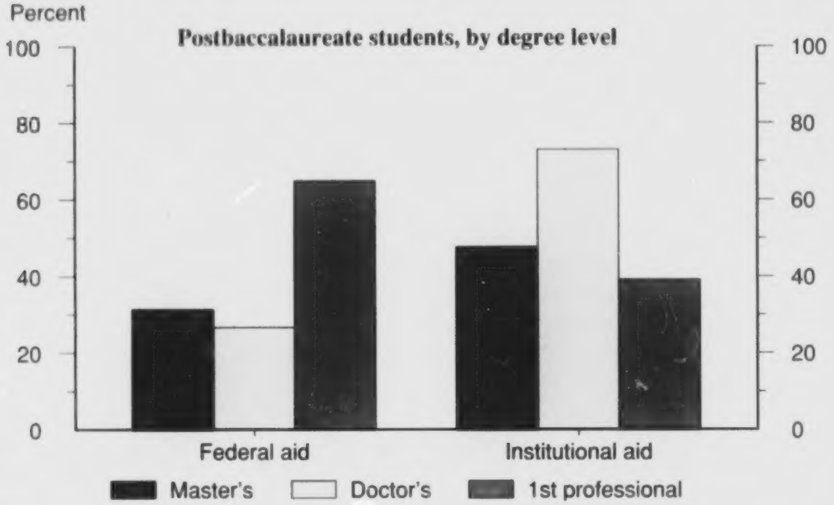
Percent of full-time students receiving financial aid, by source of aid: Fall 1986

Degree level and control of institution	Any aid	Federal	State	Institutional	Other
Undergraduate					
Total	60.4	46.6	20.6	22.8	7.7
Public	53.1	39.9	18.3	15.9	6.9
Private, nonprofit	74.2	55.5	30.7	49.4	11.3
Private, for-profit	86.4	82.0	11.4	5.3	4.0
Postbaccalaureate					
Total	73.9	44.4	9.6	48.5	10.9
Master's	68.0	31.5	5.9	47.8	11.4
Doctor's	86.9	26.9	5.5	73.3	11.7
First-professional	75.2	65.1	15.2	39.3	10.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 National Postsecondary Student Aid Study (NPSAS).

Chart 2:28 **Percent of full-time students receiving student financial aid, by source of aid: Fall 1986**





SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 National Postsecondary Student Aid Study (NPSAS).

The faculties of the Nation's colleges and universities are a vital national resource. They transmit knowledge to new generations of citizens and perform research important to our economic, social, and political life. An important question is how able higher education is to attract and retain qualified people in academic careers.[1] Another important question is how do faculty use their time? These questions arise because of concerns about the quality of undergraduate teaching, but they are also related to the productivity of faculty, their salaries, and the costs of a college education.

College faculty do not spend all of their time teaching, but how much they teach varies greatly in different types of schools. At research universities and medical schools, faculty spend less than half of their time teaching (*Indicator 2:29*), while those at liberal arts colleges spend almost two thirds of their time teaching. In addition, faculty at research universities and medical schools receive a higher basic salary and more other earnings than do faculty at liberal arts colleges (supplemental table 2:30-1). It is likely that faculty with strong research skills are more difficult to find, and so, to retain them, colleges must pay them more. Despite the smaller percentage of their time spent teaching, faculty at research institutions do not have fewer contact hours with students than faculty at liberal arts colleges (*Indicator 2:29*). This is due to a much larger average class size (measured by student contact hours per classroom hour) at research institutions. This leaves open the question of the effect of the larger class sizes on the quality of instruction.

Earnings other than basic salary are a significant source of income for faculty. More than three quarters of all *full-time* faculty receive earnings in addition to their basic salary (supplemental table 2:30-1). Those who receive other earnings receive on average one-third more earned income than those who do not (supplemental table 2:30-2). Full-time faculty at 4-year colleges and universities in the humanities receive on average 10 percent of their earned income from sources other than their basic salary; business faculty receive 20 percent from other sources.

Varying the teaching workload and allowing faculty to receive income from outside sources are important elements of the ability of colleges and universities to attract and retain qualified people in academic careers. This ability is particularly important today in view of the expected retirement of large numbers of faculty in a decade or so.[2] Many of today's faculty began their careers during the 1950s and 1960s when higher education was expanding very rapidly. These faculty will be approaching retirement age during the late 1990s and early 21st century. Exactly when these faculty will retire is uncertain, of course. This is particularly true given that many expect policies of mandatory retirement at age 70 to disappear in 1994. However, when these faculty do begin to retire, there may be an increased demand for new faculty.

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[1] Bowen, Howard R., and Jack H. Schuster, *American Professors: A National Resource Imperiled*, New York: Oxford University Press, 1986.

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[2] For a discussion of this issue, see: William G. Bowen and Julie Ann Sosa, *Prospects for Faculty in the Arts and Sciences: A Study of Factors Affecting Demand and Supply, 1987 to 2012*, Princeton University Press: Princeton, N.J., 1989.

Indicator 2:29 Teaching workload of full-time faculty, by type of institution

The amount of time college and university faculty devote to teaching versus research and other activities relates to several issues, including instructional quality, the attraction and retention of qualified faculty, and the promotion of scholarship.

- **The proportion of time that full-time faculty spend on teaching varies considerably by type of institution, from a high of 71 percent among those in 2-year institutions to a low of 26 percent among medical school faculty.**
- **Faculty in research and medical institutions spent more than one-quarter of their time on research activities. The ratio of teaching to research time in these institutions is 1.5 and 1.0, respectively. This compares to ratios of 6.0 and 7.7 for faculty in comprehensive and liberal arts institutions.**
- **Faculty in liberal arts and comprehensive institutions spend a greater number of hours in the classroom but have fewer student contact hours per classroom hour than faculty in research and doctoral institutions.**

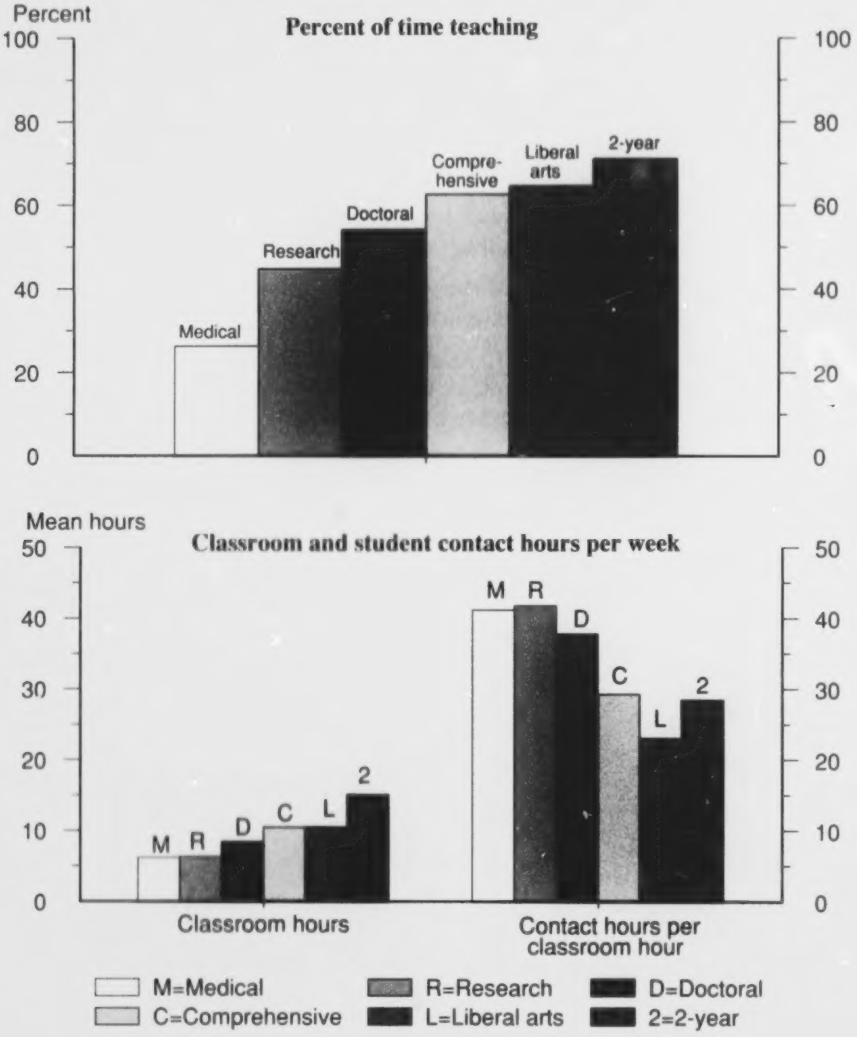
Time spent teaching and on research, classroom hours, and student contact hours of full-time faculty, by type of institution: Fall 1987

Type of institution	Percent of time spent teaching	Percent of time spent on research	Mean classroom hours	Mean student contact hours	Student contact hours per classroom hour (Mean)
All	55.7	16.1	9.8	301.6	33.9
Medical	26.5	27.0	6.3	237.3	41.3
Research	45.0	29.6	6.4	250.1	41.9
Doctoral	54.3	20.6	8.5	283.8	37.9
Comprehensive	62.8	10.4	10.6	306.8	29.4
Liberal arts	64.8	8.4	10.6	236.6	23.2
Two-year	71.3	3.4	15.2	422.0	28.6

NOTE: All medical faculty, regardless of institutional affiliation, are classified under "Medical." Student contact hours are the number of hours per week spent teaching times the number of students in each class, summed over all classes. Mean student contact hours measures the average amount of instructional time per week faculty spend with students. Mean student contact hours per classroom hour measures average class size. See supplemental note 2:29 for other definitions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Chart 2:29 Percent of time teaching, mean classroom hours, and mean student contact hours among full-time faculty, by type of institution: Fall 1987



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Indicator 2:30 Faculty salaries and total earnings of full-time faculty in institutions of higher education

Compensation is an important element in the attraction and retention of qualified faculty. In evaluating the adequacy of full-time faculty salaries, it is important to look at faculty receipt of earnings from other sources and the amount of total earned income in addition to the size of the salaries themselves.

- **Over three-quarters of full-time faculty receive earnings in addition to their basic faculty salary.***
- **The proportion of total earnings derived from sources other than the basic faculty salary ranges from 10 percent among humanities faculty to 20 percent among business faculty. Among institutional types, it ranges from 11 percent in liberal arts institutions to 19 percent in medical schools (supplemental table 2:30-1).**
- **Faculty in the health sciences have the highest and those in the humanities and education the lowest basic salaries and total earnings.**
- **Receipt of earnings in addition to the basic faculty salary makes a substantial financial difference to full-time faculty. The total earnings of recipients average one-third higher than those of nonrecipients (supplemental table 2:30-2).**

Earnings of full-time faculty in 4-year institutions, by field of teaching: Fall 1987

Principal field of teaching	Percent with earnings in addition to basic faculty salary	Mean basic faculty salary (BFS)	Mean total earned income (TEI)	BFS as a percent of TEI (Mean)
Total	78.4	$41,485	$51,524	86.1
Humanities	76.1	33,275	37,491	89.9
Social sciences	82.6	38,732	47,847	86.8
Natural sciences	74.8	41,112	48,167	87.2
Computer sciences/engineering	83.7	43,414	55,173	82.1
Education	81.8	33,300	39,830	86.6
Business	87.4	38,910	52,560	80.4
Health sciences	74.3	55,936	74,949	83.8

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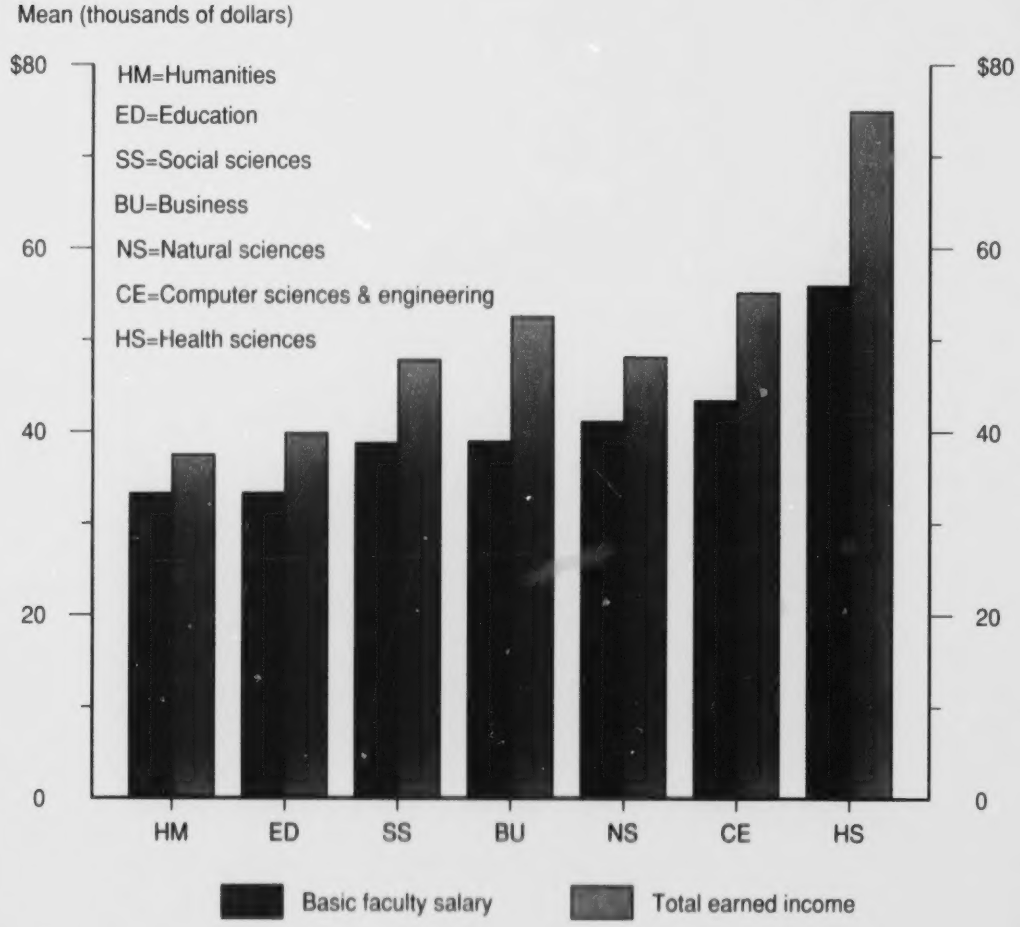
* The definition of full-time faculty used here excludes faculty with acting, affiliate, adjunct, or visiting faculty status. Field of teaching data pertain only to faculty in 4-year institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Chart 2:30 **Basic faculty salary and total earned income of full-time faculty in institutions of higher education, by primary field of teaching: Fall 1987**



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

A. Supplemental Tables and Notes

Table 2:1-1 Percent enrolled in college in October following high school graduation, by sex, type of college, and race/ethnicity: 1968–1988 *(3-year averages)*

Year[1]	Total	Male			Female			Race/ethnicity		
		Total[2]	2-year	4-year	Total[2]	2-year	4-year	White	Black[3]	Hispanic[4]
1968	53.6	60.3	—	—	47.8	—	—	55.0	42.3	—
1969	53.5	59.3	—	—	48.2	—	—	54.6	44.3	—
1970	52.9	57.6	—	—	48.5	—	—	53.9	44.6	—
1971	51.4	55.1	—	—	48.0	—	—	51.9	47.7	—
1972	49.7	53.4	—	—	46.3	—	—	50.5	42.8	—
1973	47.8	50.7	—	—	45.0	—	—	48.2	44.3	—
1974	48.3	50.7	—	—	46.1	—	—	48.8	43.8	—
1975	49.0	49.8	—	—	48.3	—	—	49.1	47.9	—
1976	50.1	50.8	16.4	32.7	49.5	16.7	31.0	50.3	48.8	—
1977	49.9	50.3	15.3	33.3	49.6	17.0	30.8	49.9	47.9	49.2
1978	50.0	51.3	16.1	33.5	49.0	17.5	29.8	50.1	47.5	46.5
1979	49.6	49.5	16.0	31.7	49.7	18.7	29.4	49.9	45.0	46.6
1980	50.9	50.7	17.9	31.5	51.0	19.3	30.0	51.3	43.8	49.7
1981	51.3	50.2	18.1	30.9	52.3	20.4	30.7	52.2	40.6	48.8
1982	52.4	51.9	19.1	31.6	52.9	19.4	32.2	53.9	39.2	49.3
1983	52.8	52.2	18.5	31.8	53.3	20.0	32.2	54.9	38.5	46.7
1984	55.1	55.4	19.3	34.0	54.8	19.6	33.8	57.4	40.2	49.4
1985	55.5	56.8	19.8	35.1	54.4	19.2	33.8	57.8	39.6	46.3
1986	56.1	57.6	19.3	37.5	54.6	18.8	34.9	57.3	43.3	42.4
1987	56.5	57.1	19.9	36.9	55.9	19.8	35.6	57.7	44.1	45.0
1988	58.4	57.7	19.1	38.6	59.1	21.9	37.2	59.2	49.7	48.6

— Not available.

[1] Three-year averages. For example, the 3-year average percentage for 1988 reported in this table is based on combining the samples for 1987, 1988, and 1989, and calculating the percent enrolled in college in October following high school graduation in the combined sample. This procedure removes some of the wide yearly fluctuation in the race/ethnicity specific rates. The rates based on single year samples are reported in table 2:1-2.

[2] Total equals the sum of those enrolled in 2-year, 4-year, and those not reporting the type of college.

[3] "Nonwhite" until 1976, "black" thereafter.

[4] Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "School Enrollment . . .," various years, based on the October supplement to the Current Population Survey, and unpublished tabulations of the Bureau of Labor Statistics based on the same survey.

Table 2:1-2 Percent enrolled in college in October following high school graduation, by sex, type of college, and race/ethnicity: 1967–1989

Year	Total	Male			Female			Race/ethnicity		
		Total[1]	2-year	4-year	Total[1]	2-year	4-year	White	Black[2]	Hispanic[3]
1967	51.9	57.6	—	—	47.2	—	—	53.1	42.3	—
1968	55.4	63.2	—	—	48.9	—	—	56.6	46.2	—
1969	53.3	60.1	—	—	47.2	—	—	55.2	38.5	—
1970	51.8	55.2	—	—	48.5	—	—	52.2	48.3	—
1971	53.5	57.5	—	—	49.7	—	—	54.2	47.3	—
1972	49.2	52.8	—	—	45.9	—	—	49.4	47.4	—
1973	46.6	50.1	—	—	43.4	—	—	48.1	34.7	—
1974	47.6	49.4	—	—	45.8	—	—	47.1	50.5	—
1975	50.7	52.6	18.3	32.3	48.9	16.8	30.5	51.2	45.6	—
1976	48.8	47.4	14.1	31.7	50.3	16.1	32.4	48.9	47.5	52.6
1977	50.6	52.2	16.8	34.0	49.2	17.2	30.1	50.7	50.0	51.3
1978	50.1	51.1	15.0	34.2	49.3	17.6	30.0	50.1	46.3	42.9
1979	49.4	50.5	16.4	32.4	48.4	17.6	29.1	49.6	46.0	44.8
1980	49.4	46.9	16.7	28.8	51.7	21.2	29.1	49.9	42.6	52.7
1981	53.9	54.8	20.6	33.3	53.1	19.4	31.9	54.6	42.9	52.1
1982	50.6	49.0	17.2	30.7	52.1	20.6	31.0	52.0	36.5	43.1
1983	52.7	51.9	19.6	30.8	53.4	18.3	33.7	55.0	38.5	54.3
1984	55.2	56.0	19.0	33.9	54.5	21.2	31.9	57.9	40.2	44.3
1985	57.7	58.6	19.4	37.7	56.9	19.3	36.1	59.4	42.3	51.1
1986	53.8	55.9	21.0	33.9	51.9	16.9	33.7	56.0	36.5	44.4
1987	56.8	58.4	17.3	41.0	55.3	20.3	35.0	56.6	51.9	33.5
1988	58.9	57.1	21.3	35.8	60.7	22.4	38.3	60.7	44.9	57.0
1989	59.6	57.6	18.4	39.2	61.6	23.1	38.6	60.4	52.8	55.4

— Not available.

[1] Total equals the sum of those enrolled in 2-year, 4-year, and those not reporting the type of college.

[2] "Nonwhite" until 1976, "black" thereafter.

[3] Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "School Enrollment . . .," various years, based on the October supplement to the Current Population Survey, and unpublished tabulations of the Bureau of Labor Statistics based on the same survey.

Table 2:1-3 Standard errors for estimated percentages in table 2:1-1

		Male			Female			Race/ethnicity		
Year[1]	Total	Total[2]	2-year	4-year	Total[2]	2-year	4-year	White	Black[3]	Hispanic[4]
1968	0.8	1.1	—	—	1.1	—	—	0.8	2.5	—
1969	0.8	1.1	—	—	1.1	—	—	0.8	2.5	—
1970	0.8	1.1	—	—	1.1	—	—	0.8	2.5	—
1971	0.8	1.1	—	—	1.1	—	—	0.8	2.5	—
1972	0.8	1.1	—	—	1.0	—	—	0.8	2.4	—
1973	0.7	1.1	—	—	1.0	—	—	0.8	2.3	—
1974	0.7	1.1	—	—	1.0	—	—	0.8	2.3	—
1975	0.7	1.1	—	—	1.0	—	—	0.8	2.3	—
1976	0.7	1.1	0.8	1.0	1.0	0.8	1.0	0.8	1.9	—
1977	0.7	1.1	0.8	1.0	1.0	0.8	1.0	0.8	1.8	4.4
1978	0.7	1.1	0.8	1.0	1.0	0.8	0.9	0.8	2.3	4.4
1979	0.7	1.1	0.8	1.0	1.0	0.8	0.9	0.8	2.3	4.5
1980	0.8	1.1	0.9	1.1	1.1	0.9	1.0	0.8	2.5	4.5
1981	0.8	1.1	0.9	1.1	1.1	0.9	1.0	0.8	2.4	4.2
1982	0.8	1.1	0.9	1.1	1.1	0.9	1.0	0.9	2.3	4.6
1983	0.8	1.2	0.9	1.1	1.1	0.9	1.0	0.9	2.3	4.5
1984	0.8	1.2	1.0	1.2	1.1	0.9	1.1	0.9	2.3	4.5
1985	0.8	1.2	1.0	1.2	1.1	0.9	1.1	0.9	2.3	4.6
1986	0.8	1.2	1.0	1.2	1.2	0.9	1.1	0.9	2.5	4.3
1987	0.8	1.2	1.0	1.2	1.2	0.9	1.1	0.9	2.4	4.3
1988	0.8	1.2	1.0	1.2	1.2	1.0	1.2	0.9	2.5	4.3

— Not available.

[1] Standard errors for 3-year averages. For example, the standard error for the 3-year average percentage for 1988 reported in table 2:1-1 is based on the combined sample size for 1987, 1988, and 1989 of the denominators for the percentages in table 2:1-2.

[2] Total equals the sum of those enrolled in 2-year, 4-year, and those not reporting the type of college.

[3] "Nonwhite" until 1976, "black" thereafter.

[4] Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "School Enrollment . . .," various years, based on the October supplement to the Current Population Survey, and unpublished tabulations of the Bureau of Labor Statistics based on the same survey.

Table 2:1-4 Standard errors for estimated percentages in table 2:1-2

Year	Total	Male			Female			Race/ethnicity		
		Total[1]	2-year	4-year	Total[1]	2-year	4-year	White	Black[2]	Hispanic[3]
1967	1.4	2.1	—	—	1.9	—	—	1.5	4.6	—
1968	1.4	2.0	—	—	1.9	—	—	1.5	4.3	—
1969	1.3	1.9	—	—	1.8	—	—	1.4	4.2	—
1970	1.3	1.9	—	—	1.9	—	—	1.4	4.4	—
1971	1.3	1.9	—	—	1.8	—	—	1.4	4.5	—
1972	1.3	1.9	—	—	1.8	—	—	1.4	4.0	—
1973	1.3	1.9	—	—	1.8	—	—	1.4	3.8	—
1974	1.3	1.8	—	—	1.8	—	—	1.4	3.9	—
1975	1.3	1.8	1.4	1.7	1.7	1.3	1.3	1.3	3.9	—
1976	1.3	1.9	1.3	1.8	1.8	1.4	1.3	1.4	4.0	6.1
1977	1.3	1.8	1.4	1.8	1.7	1.3	1.3	1.3	4.1	6.0
1978	1.3	1.8	1.3	1.8	1.7	1.3	1.3	1.4	4.0	6.5
1979	1.3	1.8	1.4	1.7	1.7	1.3	1.2	1.3	4.1	6.0
1980	1.4	1.9	1.5	1.8	1.9	1.6	1.4	1.5	4.2	6.6
1981	1.4	2.0	1.6	1.9	1.9	1.6	1.4	1.5	4.2	6.7
1982	1.4	2.0	1.5	1.8	1.9	1.5	1.4	1.5	4.0	6.1
1983	1.4	2.0	1.6	1.9	1.9	1.5	1.5	1.5	4.0	6.8
1984	1.4	2.0	1.6	2.0	1.9	1.6	1.4	1.5	3.8	5.9
1985	1.5	2.1	1.7	2.1	2.0	1.6	1.6	1.6	4.4	6.8
1986	1.4	2.1	1.7	2.0	2.0	1.5	1.5	1.6	4.0	6.2
1987	1.5	2.1	1.6	2.1	2.0	1.7	1.6	1.6	4.4	5.7
1988	1.4	2.1	1.7	2.0	2.0	1.7	1.6	1.6	4.1	6.0
1989	1.5	2.2	1.7	2.1	2.1	1.8	2.1	1.6	4.4	6.2

— Not available.

[1] Total equals the sum of those enrolled in 2-year, 4-year, and those not reporting the type of college.

[2] "Nonwhite" until 1976, "black" thereafter.

[3] Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "School Enrollment . . .," various years, based on the October supplement to the Current Population Survey, and unpublished tabulations of the Bureau of Labor Statistics based on the same survey.

Table 2:2-1 Date of first enrollment in postsecondary education among *1982* high school graduates who enrolled before 1986, by race/ethnicity and type of institution

Race/ethnicity and type of institution	Date of first enrollment in postsecondary education: 10/82	2/83 or 10/83	2/84 or 10/84	2/85 or 10/85	10/82 to 10/85
			Percent		
All races					
4-year	48.3	3.8	1.6	0.4	54.1
2-year	25.9	6.0	1.8	1.3	35.0
Other	5.7	1.8	1.7	1.6	10.8
All types	79.9	11.7	5.1	3.3	100.0
White, non-Hispanic					
4-year	50.0	3.6	1.5	0.4	55.5
2-year	25.9	5.5	1.7	1.3	34.5
Other	5.7	1.3	1.5	1.5	10.0
All types	81.6	10.4	4.7	3.3	100.0
Black, non-Hispanic					
4-year	41.8	4.9	2.2	0.3	49.2
2-year	23.0	8.4	2.3	1.1	34.8
Other	4.9	5.6	2.9	2.6	16.0
All types	69.8	18.8	7.4	4.0	100.0
Hispanic					
4-year	36.4	4.6	1.8	0.2	43.0
2-year	30.5	8.6	2.8	1.8	43.6
Other	6.7	2.0	2.8	1.9	13.4
All types	73.7	15.1	7.3	3.9	100.0

Race/ethnicity and type of institution	Date of first enrollment in postsecondary education: 10/82	2/83 or 10/83	2/84 or 10/84	2/85 or 10/85	10/82 to 10/85
			Standard error of percent		
All races					
4-year	0.1	(*)	(*)	(*)	0.1
2-year	0.1	(*)	(*)	(*)	0.1
Other	(*)	(*)	(*)	0.1	0.1
All types	0.1	(*)	0.1	0.1	(*)
White, non-Hispanic					
4-year	0.1	(*)	0.1	(*)	0.1
2-year	0.2	(*)	(*)	0.1	0.1
Other	(*)	(*)	(*)	0.1	0.1
All types	0.1	0.1	0.1	0.1	(*)
Black, non-Hispanic					
4-year	0.2	0.3	(*)	(*)	0.2
2-year	0.1	(*)	0.1	(*)	0.1
Other	0.1	(*)	(*)	0.2	0.2
All types	0.2	0.2	0.1	0.2	(*)
Hispanic					
4-year	0.3	0.1	(*)	(*)	0.3
2-year	0.5	0.2	(*)	(*)	0.4
Other	0.4	(*)	(*)	(*)	0.4
All types	0.4	0.3	0.1	(*)	(*)

* Less than .05.

NOTE: See supplemental note 2:2.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond, 1980 Sophomore Cohort Third Followup (1986).

Table 2:2-2 Date of first enrollment in postsecondary education among *1980* high school graduates who enrolled before 1984, by race/ethnicity and type of institution

Race/ethnicity and type of institution	Date of first enrollment in postsecondary education				
	10/80	2/81 or 10/81	2/82 or 10/82	2/83 or 10/83	10/80 to 10/83
			Percent		
All races					
4-year	47.0	5.4	3.6	0.9	57.0
2-year	24.6	5.7	3.2	1.5	35.1
Other	5.5	1.2	0.7	0.4	7.9
All types	77.1	12.4	7.6	2.9	100.0
White, non-Hispanic					
4-year	48.1	5.2	3.3	0.8	57.5
2-year	25.0	5.6	2.9	1.5	34.9
Other	5.5	1.0	0.6	0.4	7.6
All types	78.6	11.7	6.9	2.8	100.0
Black, non-Hispanic					
4-year	46.4	8.4	4.8	1.4	61.0
2-year	18.1	6.0	3.4	1.3	28.8
Other	5.9	2.1	1.6	0.6	10.2
All types	70.4	16.5	9.9	3.3	100.0
Hispanic					
4-year	31.3	5.0	2.3	0.9	39.5
2-year	35.4	8.7	5.9	1.3	51.4
Other	5.2	2.8	1.0	0.1	9.2
All types	72.0	16.5	9.3	2.3	100.0

Race/ethnicity and type of institution	Date of first enrollment in postsecondary education				
	10/80	2/81 or 10/81	2/82 or 10/82	2/83 or 10/83	10/80 to 10/83
			Standard error of percent		
All races					
4-year	0.2	0.1	0.1	(*)	0.2
2-year	0.1	0.1	0.1	0.1	0.2
Other	(*)	(*)	(*)	(*)	0.1
All types	0.2	0.1	0.1	0.1	(*)
White, non-Hispanic					
4-year	0.2	0.1	0.1	(*)	0.2
2-year	0.1	0.1	0.1	0.1	0.2
Other	0.1	(*)	(*)	(*)	0.1
All types	0.2	0.2	0.1	0.1	(*)
Black, non-Hispanic					
4-year	0.2	0.1	0.2	(*)	0.2
2-year	0.1	0.1	(*)	0.1	0.2
Other	0.1	(*)	0.1	0.1	0.1
All types	0.2	0.1	0.1	(*)	(*)
Hispanic					
4-year	0.4	0.3	(*)	(*)	0.5
2-year	0.6	0.1	0.1	(*)	0.5
Other	0.2	(*)	(*)	(*)	0.2
All types	0.3	0.3	0.1	(*)	(*)

* Less than .05.

NOTE: See supplemental note 2:2.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School and Beyond, 1980 Senior Cohort Second Followup (1984).

Table 2:2-3 Date of first enrollment in postsecondary education among *1972* high school graduates who enrolled before 1976, by race/ethnicity and type of institution

Race/ethicity and type of institution	Date of first enrollment in postsecondary education				
	6/72 to 12/72	1/73 to 12/73	1/74 to 12/74	1/75 to 12/75	6/72 to 12/75
			Percent		
All races					
4-year	50.6	4.6	2.4	1.2	58.8
2-year	25.0	4.8	2.6	2.0	34.3
Other	4.6	1.2	0.6	0.5	6.9
All types	80.2	10.6	5.5	3.7	100.0
White, non-Hispanic					
4-year	52.0	4.5	2.2	1.1	59.8
2-year	24.9	4.7	2.3	1.7	33.4
Other	4.7	1.1	0.6	0.5	6.8
All types	81.5	10.3	5.0	3.2	100.0
Black, non-Hispanic					
4-year	47.8	5.7	3.7	1.7	59.0
2-year	20.4	4.4	3.9	4.1	32.7
Other	4.5	1.8	1.5	0.6	8.3
All types	72.7	11.9	9.0	6.4	100.0
Hispanic					
4-year	32.0	3.4	1.9	2.4	39.7
2-year	37.8	8.1	3.0	5.5	54.4
Other	4.4	0.4	0.3	0.7	5.9
All types	74.3	11.9	5.2	8.6	100.0

Race/ethicity and type of institution	Date of first enrollment in postsecondary education				
	6/72 to 12/72	1/73 to 12/73	1/74 to 12/74	1/75 to 12/75	6/72 to 12/75
			Standard error of percent		
All races					
4-year	0.3	0.1	0.1	(*)	0.3
2-year	0.3	0.1	0.1	0.1	0.3
Other	0.1	0.1	(*)	(*)	0.2
All types	0.2	0.1	0.1	0.1	(*)
White, non-Hispanic					
4-year	0.3	0.1	0.1	(*)	0.3
2-year	0.3	0.1	0.1	0.1	0.3
Other	0.1	0.1	(*)	(*)	0.2
All types	0.2	0.1	0.1	0.1	(*)
Black, non-Hispanic					
4-year	0.8	0.3	0.2	0.3	0.8
2-year	0.6	0.3	0.2	0.2	0.8
Other	0.3	0.1	0.1	0.1	0.4
All types	0.7	0.5	0.3	0.3	(*)
Hispanic					
4-year	1.2	0.3	0.1	0.1	1.2
2-year	1.3	0.3	0.1	0.3	1.3
Other	0.2	0.1	0.3	0.3	0.4
All types	0.7	0.4	0.3	0.4	(*)

* Less than .05.

NOTE: See supplemental note 2:2.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972, Postsecondary Education Transcript Study.

Supplemental note 2:2 Continuation to college rates

Three longitudinal surveys were used as the basis for calculating delayed continuation to college. These are the National Longitudinal Study of the High School Class of 1972 (NLS-72), and the High School and Beyond studies of 1980 Seniors (HS&B Seniors) and Sophomores (HS&B Sophomores). These longitudinal surveys are ideal for describing for a particular graduating class their patterns of attendance at postsecondary institutions, because the same sample is surveyed several times over a period of years following high school graduation. However, comparison of attendance patterns between graduating classes is more difficult, because the methods of data collection change, the timing of the surveys change, and the questions themselves change. The result is that there are more possible sources of nonsampling error when estimating differences between graduating classes than there are when estimating differences between groups within a graduating class. Thus, the reader should be more careful than usual not to interpret small estimated differences between graduating classes as evidence of true differences. Some of the differences between the three samples are described below.

National Longitudinal Study of the High School Class of 1972

This is a sample of over 22,000 seniors in high school in 1972. These seniors completed questionnaires in 1972, 1973, 1974, 1976, and 1979. A subsample of about 14,000 were sent questionnaires in 1986. As a supplement to these data a Postsecondary Education Transcript Study (PETS)[1] was conducted during 1984–85. This study involved the collection and processing of school transcripts for all members of the NLS-72 cohort who had attended any form of postsecondary institution since leaving high school. Because members of the sample often attended more than one institution, a transcript was requested from each institution they attended. These transcripts contain information on the dates of attendance, courses taken, and credits earned. The estimates in table 2:2-3 were based on these PETS data. Included in the analysis were all individuals for whom at least one transcript was requested and received and who had attended at least one term before January 1976. No individuals were excluded from the sample based on the number of credits attempted or successfully completed. The response rate was high—87 percent of requested transcripts were received.[2] However, among vocational and proprietary institutions it was low—55 percent. An adjustment was made for non-response, but results may nevertheless underestimate the percentage of first enrollment in a proprietary or vocational institution.

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[1] U.S. Department of Education, Clifford Adelman, *A College Course Map: Taxonomy and Transcript Data*, October 1990.

[2] U.S. Department of Education, National Center for Education Statistics, *National Longitudinal Study of the High School Class of 1972: Postsecondary Education Transcript Study Data File User's Manual*, August 1986.

High School and Beyond Senior Cohort
This is a sample of about 12,000 high school seniors in the spring of 1980. These seniors completed questionnaires in 1980, 1982, 1984, and 1986. Questions about attendance at one or more postsecondary institution were a part of the 1982, 1984, and 1986 questionnaires. Included among these questions was the date the individual started attending each institution and the date the individual left each institution. These dates were then used to determine an individual's enrollment status in February and October of each year. The estimates in table 2:2-2 were based on those who participated in the 1984 followup and indicated they were enrolled at a postsecondary institution on at least one February or October before 1984.

High School and Beyond Sophomore Cohort
This is a sample of about 15,000 high school sophomores in the spring of 1980. These sophomores completed questionnaires in 1980, 1982, 1984, and 1986. Questions about attendance at one or more postsecondary institution were a part of the 1984 and 1986 questionnaires. Included among the 1984 questions was the date the individual started attending each institution and the date the individual left each institution. The 1986 questions were more elaborate and allowed for the possibility of multiple instances of starting and stopping attendance at a particular institution. These dates were then used to determine an individual's enrollment status in February and October of each year. In a few instances individuals were attending more than one institution at the same time. The estimates in table 2:2-1 were based on those who participated in the 1986 followup who and indicated they had graduated from high school in 1982 and were enrolled at a postsecondary institution in at least one February or October before 1986.

In summary, there are two major differences in the type of data used to calculate date of first enrollment in postsecondary education in the 3 high school cohorts. First, table 2:2-3 (high school class of 1972) is based on transcript data, whereas table 2:2-2 (high school class of 1980) and table 2:1 (high school class of 1982) are based on student completed questionnaires. Second, some of the questions used as the basis for table 2:2-1 provided more detail on attendance patterns than did the questions used as the basis for table 2:2-2.

Indicator 2:3

Table 2:3-1 Average undergraduate tuition, room, and board as a percent of income of families with children under 18, all 6-17 years old, at selected family income percentiles, by control of institution: 1975–1989

	Public institutions				Private institutions			
	Family income percentile				Family income percentile			
Year	20th	25th	50th	75th	20th	25th	50th	75th
1975	19.8	16.9	10.5	7.5	43.5	37.2	23.2	16.4
1976	19.6	16.8	10.3	7.4	42.7	36.7	22.5	16.1
1977	19.7	16.8	10.2	7.2	43.3	37.0	22.4	15.9
1978	19.1	16.3	9.9	7.1	43.2	37.0	22.3	16.2
1979	18.9	16.2	9.7	6.8	42.9	36.7	22.1	15.4
1980	20.2	17.1	10.1	6.9	46.6	39.5	23.2	15.9
1981	21.9	18.3	10.5	7.2	50.6	42.4	24.4	16.7
1982	24.1	19.8	11.2	7.6	56.6	46.6	26.4	17.8
1983	25.3	20.8	11.7	7.7	60.1	49.5	27.9	18.3
1984	25.2	20.8	11.9	7.8	60.6	50.2	28.7	18.8
1985	24.4	20.6	11.6	7.8	60.8	51.1	28.9	19.4
1986	26.1	21.6	12.0	7.9	66.4	55.0	30.6	20.1
1987	26.5	22.1	12.1	7.9	68.9	57.3	31.4	20.6
1988	26.4	22.0	12.3	8.0	69.1	57.6	32.1	21.1
1989	26.5	22.0	12.4	8.2	70.6	58.6	33.0	21.8

NOTE: Tuition data are for academic years beginning 1975–1989 and family income data are for calendar years 1975–1989.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, Table 281. U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-60, "Money Income of Families and Persons: March . . .," various years, based on March supplement to the Current Population Survey.

Table 2:3-2 Average undergraduate tuition, room, and board in constant 1990 dollars and as a percent of the income of all families at selected family income percentiles, by control of institution: 1964–1989

	Public institutions				Private institutions			
		Family income percentile				Family income percentile		
Year	Constant dollars	20th	50th	80th	Constant dollars	20th	50th	80th
1964	$3,984	29.0	14.4	9.2	$7,997	58.2	28.8	18.6
1965	4,057	27.7	13.9	9.0	8,275	56.6	28.5	18.3
1966	4,117	25.7	13.4	8.7	8,522	53.1	27.8	18.0
1967	4,141	25.5	13.2	8.5	8,582	52.9	27.3	17.6
1968	4,173	24.4	12.8	8.3	8,670	50.7	26.7	17.2
1969	4,261	23.8	12.6	8.1	8,962	50.1	26.5	17.0
1970	4,312	24.6	12.7	8.1	9,174	52.4	27.1	17.2
1971	4,356	25.7	13.0	8.3	9,363	55.3	28.0	17.8
1972	4,534	25.4	12.8	8.0	9,448	52.9	26.7	16.7
1973	4,442	23.8	12.0	7.5	9,264	49.5	25.0	15.6
1974	4,122	22.4	11.5	7.2	8,973	48.9	25.1	15.7
1975	4,026	23.4	11.8	7.3	8,851	51.4	25.9	16.1
1976	4,087	23.3	11.6	7.2	8,924	50.9	25.3	15.8
1977	4,050	23.1	11.4	7.0	8,920	50.9	25.1	15.5
1978	3,976	21.8	10.8	6.6	9,000	49.3	24.4	15.0
1979	3,877	20.7	10.3	6.4	8,796	46.9	23.5	14.6
1980	3,744	21.9	10.7	6.5	8,630	50.6	24.7	15.1
1981	3,808	23.6	11.5	6.9	8,818	54.6	26.6	15.9
1982	3,967	25.9	12.4	7.2	9,322	60.7	29.0	17.0
1983	4,119	26.4	12.5	7.4	9,800	62.9	29.8	17.5
1984	4,264	26.8	12.7	7.4	10,262	64.5	30.5	17.8
1985	4,314	26.8	12.7	7.4	10,735	66.6	31.7	18.3
1986	4,513	27.0	12.7	7.4	11,477	68.7	32.4	18.9
1987	4,635	27.5	12.9	7.5	12,030	71.3	33.4	19.5
1988	4,697	27.6	13.0	7.5	12,296	72.3	33.9	19.5
1989	4,730	27.6	12.9	7.4	12,640	73.6	34.4	19.8

NOTE: Tuition data are for academic years beginning 1964–1989 and family income data are for calendar years 1964–1989. The calendar year Consumer Price Index was used to calculate constant dollar figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, Table 281. U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-60, "Money Income of Families and Persons: March . . .," various years, based on March supplement to the Current Population Survey.

Table 2:4-1 Average total, net, and adjusted net cost of college attendance and expected family contribution (EFC) for dependent, full-time, full-year undergraduate college students, by type and control of institution and family income: Academic year ending 1987

Type and control and family income	Tuition and fees	EFC[1]	Total cost[2]	Net cost[3]	Adjusted net cost[4]	Average percentage of total cost met by	
						Aid[3]	Adjusted aid[4]
Public 2-year							
Less than $11,000	$618	$1,758	$3,010	$1,734	$1,971	47.5	40.5
$11,000-17,000	607	2,645	2,607	1,637	1,793	42.3	37.0
$17,000-30,000	669	4,094	2,651	2,033	2,162	24.2	20.3
$30,000-50,000	691	7,519	2,439	2,178	2,264	9.7	6.8
More than $50,000	637	18,950	2,405	2,320	2,339	3.6	3.0
Public 4-year							
Less than $11,000	1,573	1,608	4,637	1,951	2,536	62.9	50.3
$11,000-17,000	1,549	1,716	4,586	1,888	2,606	64.5	48.7
$17,000-30,000	1,584	3,458	4,425	2,554	3,160	44.9	30.3
$30,000-50,000	1,646	7,959	4,397	3,444	3,819	23.0	13.9
More than $50,000	1,740	20,232	4,556	4,207	4,336	7.8	4.9
Private, nonprofit, less than 4-year							
Less than $11,000	3,235	1,591	5,839	2,578	3,215	60.9	49.6
$11,000-17,000	3,100	1,299	6,025	1,901	2,793	75.8	59.1
$17,000-30,000	2,916	2,647	5,713	2,764	3,495	54.6	41.1
$30,000-50,000	3,131	6,459	5,927	3,935	4,559	34.1	23.5
More than $50,000	3,706	21,060	7,085	6,155	6,385	16.6	12.7
Proprietary							
Less than $11,000	3,985	1,116	6,095	1,988	3,201	76.0	53.4
$11,000-17,000	4,160	1,241	6,324	2,705	4,015	65.0	42.0
$17,000-30,000	4,290	2,657	6,587	3,292	4,738	56.4	32.2
$30,000-50,000	4,576	6,101	6,797	4,346	5,616	39.3	19.0
More than $50,000	4,832	14,959	7,082	5,960	6,559	16.4	7.6
Private, nonprofit, 4-year							
Less than $11,000	6,005	2,004	9,590	3,911	5,019	64.1	51.7
$11,000-17,000	6,210	1,473	9,891	3,287	4,757	69.9	54.1
$17,000-30,000	6,186	3,000	9,795	4,007	5,390	61.2	46.0
$30,000-50,000	6,326	6,798	10,092	6,167	7,225	40.3	29.1
More than $50,000	6,982	24,332	10,963	9,218	9,717	17.0	12.1

[1] Expected family contribution defined using the Uniform Methodology. See supplemental note 2:4.

[2] Total cost includes tuition and fees, room and board, books, transportation, and other miscellaneous expenses.

[3] Net cost is total cost less grant aid, student loan amounts, and work-study earnings.

[4] Adjusted net cost is total cost less grant aid and 40 percent of loan amounts. This adjustment is based on the estimate that each dollar of student loan has 40 cents of subsidy and the position that work-study earnings should not be regarded as aid because it requires the student to work.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Table 2:4-2 Number of dependent, full-time, full-year undergraduates and their net and adjusted net cost of college attendance as a ratio of expected family contribution (EFC), by type and control of institution and family income: Academic year ending 1987

Type and control and family income	Number of dependent, full-time, full-year undergraduates	Ratio of net cost to EFC*			Ratio of adjusted net cost to EFC*		
		Average	Percent less than 1	Percent greater than 1.5	Average	Percent less than 1	Percent greater than 1.5
Public 2-year	878,572						
Less than $11,000	134,960	1.71	46.6	42.0	1.98	41.7	46.3
$11,000-17,000	92,538	1.33	57.5	27.8	1.48	54.0	29.4
$17,000-30,000	228,659	1.03	67.6	23.6	1.11	65.3	25.4
$30,000-50,000	282,751	0.61	87.5	7.7	0.64	86.8	8.3
More than $50,000	139,664	0.21	97.9	1.3	0.21	97.9	1.3
Public 4-year	2,425,660						
Less than $11,000	234,270	1.99	44.9	46.3	2.62	32.8	58.5
$11,000-17,000	173,800	1.59	47.8	42.8	2.33	36.1	54.9
$17,000-30,000	484,616	1.34	56.2	30.8	1.70	45.0	40.0
$30,000-50,000	827,858	0.76	80.5	10.3	0.87	75.9	12.9
More than $50,000	705,116	0.35	95.7	2.1	0.37	95.1	2.3
Private, nonprofit, less than 4-year	68,605						
Less than $11,000	10,585	2.78	40.3	50.5	3.51	29.6	60.3
$11,000-17,000	8,363	1.88	50.4	44.4	2.77	33.8	58.8
$17,000-30,000	13,553	1.67	51.5	36.2	2.18	39.2	45.1
$30,000-50,000	22,868	0.87	72.0	15.4	1.05	63.8	19.7
More than $50,000	13,236	0.51	90.2	4.3	0.54	89.7	4.8
Proprietary	168,268						
Less than $11,000	42,407	2.31	47.2	46.9	3.80	21.8	70.1
$11,000-17,000	22,880	3.05	30.7	65.4	4.43	13.6	78.0
$17,000-30,000	44,560	1.94	44.0	43.8	2.84	28.1	59.3
$30,000-50,000	41,541	1.03	66.4	23.1	1.35	56.7	32.1
More than $50,000	16,880	0.64	90.3	5.2	0.70	86.8	6.1
Private, nonprofit, 4-year	1,202,697						
Less than $11,000	105,304	3.58	37.6	55.4	4.80	21.4	73.2
$11,000-17,000	72,073	2.88	35.4	58.1	4.37	16.4	78.0
$17,000-30,000	217,678	1.95	40.8	45.8	2.77	23.0	62.2
$30,000-50,000	362,664	1.35	52.7	26.3	1.64	41.6	36.4
More than $50,000	444,978	0.68	83.3	6.4	0.74	79.3	8.3

* Expected family contribution defined using the Uniform Methodology. See supplemental note 2:4.

NOTE: See notes to table 2:4-1.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Table 2:4-3 Selected percentiles of the ratio of net cost and adjusted net cost to expected family contribution for dependent, full-year, full-time undergraduates, by type and control of institution and family income: Academic year ending 1987

Type and control of institution and family income	Percentiles of the ratio of net cost to EFC*			Percentiles of the ratio of adjusted net cost to EFC*		
	25th	50th	75th	25th	50th	75th
Public 2-year						
Less than $11,000	0.04	0.7	0.6	0.04	0.8	0.6
$11,000-17,000	0.04	0.8	0.8	0.04	0.7	0.9
$17,000-30,000	0.02	0.5	0.4	0.02	0.5	0.4
$30,000-50,000	0.01	0.3	0.3	0.01	0.3	0.3
More than $50,000	0.00	0.2	0.2	0.00	0.2	0.2
Public 4-year						
Less than $11,000	0.02	0.4	0.4	0.02	0.3	0.4
$11,000-17,000	0.02	0.4	0.4	0.02	0.4	0.5
$17,000-30,000	0.01	0.2	0.2	0.01	0.2	0.2
$30,000-50,000	0.00	0.1	0.1	0.00	0.1	0.1
More than $50,000	0.00	0.1	0.1	0.00	0.1	0.1
Private, nonprofit, less than 4-year						
Less than $11,000	0.10	0.9	1.0	0.09	0.7	1.0
$11,000-17,000	0.05	1.2	0.9	0.05	1.4	1.2
$17,000-30,000	0.03	0.5	0.6	0.03	0.6	0.7
$30,000-50,000	0.02	0.7	0.5	0.02	0.7	0.6
More than $50,000	0.02	0.5	0.3	0.02	0.5	0.3
Proprietary						
Less than $11,000	0.06	0.8	0.8	0.06	0.4	0.5
$11,000-17,000	0.07	0.9	1.1	0.08	0.5	0.8
$17,000-30,000	0.03	0.8	0.7	0.04	0.9	0.8
$30,000-50,000	0.01	0.6	0.5	0.02	0.5	0.7
More than $50,000	0.02	0.6	0.4	0.02	0.7	0.4
Private, nonprofit, 4-year						
Less than $11,000	0.04	0.4	0.4	0.04	0.3	0.4
$11,000-17,000	0.03	0.5	0.5	0.03	0.4	0.4
$17,000-30,000	0.02	0.4	0.4	0.02	0.3	0.3
$30,000-50,000	0.01	0.2	0.2	0.01	0.2	0.3
More than $50,000	0.00	0.2	0.1	0.01	0.2	0.1

* Expected family contribution defined using the Uniform Methodology. See supplemental note 2:4.

NOTE: Net cost deducts aid (grants, loans, and work-study earnings) from student reported total cost. Net cost can be negative if aid is larger than student reported total cost. Adjusted net cost deducts adjusted aid (grants and 40 percent of loans). See notes to table 2:4-1.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Table 2:4-4 Standard errors table for estimates in table 2:4-1

Type and control and family income	Tuition and fees	EFC[1]	Total cost[2]	Net cost[3]	Adjusted net cost[4]	Average percentage of total cost met by	
						Aid[3]	Adjusted aid[4]
Public 2-year							
Less than $11,000	$9	$32	$26	$35	33	0.9	0.8
$11,000-17,000	11	65	38	34	33	0.9	0.8
$17,000-30,000	10	48	29	25	26	0.5	0.5
$30,000-50,000	7	58	16	16	16	0.3	0.2
More than $50,000	11	198	31	29	29	0.2	0.2
Public 4-year							
Less than $11,000	9	19	20	20	20	0.4	0.4
$11,000-17,000	8	20	21	19	20	0.4	0.3
$17,000-30,000	7	17	13	12	11	0.2	0.2
$30,000-50,000	7	18	12	12	11	0.1	0.1
More than $50,000	12	61	18	16	17	0.1	0.1
Private, nonprofit, less than 4-year							
Less than $11,000	36	57	71	86	83	1.2	1.0
$11,000-17,000	48	23	79	57	57	0.9	0.6
$17,000-30,000	37	39	62	37	42	0.8	0.6
$30,000-50,000	35	35	61	47	50	0.6	0.5
More than $50,000	56	391	105	113	111	0.4	0.4
Proprietary							
Less than $11,000	34	15	43	45	42	0.7	0.5
$11,000-17,000	41	18	54	56	52	0.6	0.3
$17,000-30,000	29	35	43	47	44	0.5	0.3
$30,000-50,000	40	40	43	38	38	0.4	0.2
More than $50,000	55	191	74	67	69	0.5	0.2
Private, nonprofit, 4-year							
Less than $11,000	31	39	40	42	43	0.4	0.3
$11,000-17,000	36	13	44	33	32	0.3	0.3
$17,000-30,000	28	15	37	22	23	0.2	0.2
$30,000-50,000	30	21	36	25	25	0.2	0.2
More than $50,000	32	125	36	38	36	0.1	0.1

[1] Expected family contribution defined using the Uniform Methodology. See supplemental note 2:4.

[2] Total cost includes tuition and fees, room and board, books, transportation, and other miscellaneous expenses.

[3] Net cost is total cost less grant aid, student loan amounts, and work-study earnings.

[4] Adjusted net cost is total cost less grant aid and 40 percent of loan amounts. This adjustment is based on the estimate that each dollar of student loan has 40 cents of subsidy. Work-study earnings are excluded, because some argue that earnings should not be regarded as aid.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Table 2:4-5 Standard errors table for estimates in table 2:4-2

Type and control of institution and family income	Ratio of net cost to EFC*			Ratio of adjusted net cost to EFC*		
	Average	Percent less than 1	Percent greater than 1.5	Average	Percent less than 1	Percent greater than 1.5
Public 2-year						
Less than $11,000	0.04	0.7	0.6	0.04	0.8	0.6
$11,000-17,000	0.04	0.8	0.8	0.04	0.7	0.9
$17,000-30,000	0.02	0.5	0.4	0.02	0.5	0.4
$30,000-50,000	0.01	0.3	0.3	0.01	0.3	0.3
More than $50,000	0.00	0.2	0.2	0.00	0.2	0.2
Public 4-year						
Less than $11,000	0.02	0.4	0.4	0.02	0.3	0.4
$11,000-17,000	0.02	0.4	0.4	0.02	0.4	0.5
$17,000-30,000	0.01	0.2	0.2	0.01	0.2	0.2
$30,000-50,000	0.00	0.1	0.1	0.00	0.1	0.1
More than $50,000	0.00	0.1	0.1	0.00	0.1	0.1
Private, nonprofit, less than 4-year						
Less than $11,000	0.10	0.9	1.0	0.09	0.7	1.0
$11,000-17,000	0.05	1.2	0.9	0.05	1.4	1.2
$17,000-30,000	0.03	0.5	0.6	0.03	0.6	0.7
$30,000-50,000	0.02	0.7	0.5	0.02	0.7	0.6
More than $50,000	0.02	0.5	0.3	0.02	0.5	0.3
Proprietary						
Less than $11,000	0.06	0.8	0.8	0.06	0.4	0.5
$11,000-17,000	0.07	0.9	1.1	0.08	0.5	0.8
$17,000-30,000	0.03	0.8	0.7	0.04	0.9	0.8
$30,000-50,000	0.01	0.6	0.5	0.02	0.5	0.7
More than $50,000	0.02	0.6	0.4	0.02	0.7	0.4
Private, nonprofit, 4-year						
Less than $11,000	0.04	0.4	0.4	0.04	0.3	0.4
$11,000-17,000	0.03	0.5	0.5	0.03	0.4	0.4
$17,000-30,000	0.02	0.4	0.4	0.02	0.3	0.3
$30,000-50,000	0.01	0.2	0.2	0.01	0.2	0.3
More than $50,000	0.00	0.2	0.1	0.01	0.2	0.1

* Expected family contribution defined using the Uniform Methodology. See supplemental note 2:4.

NOTE: See notes to table 2:4-1.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Supplemental note 2:4 Net cost of college attendance*

Definitions of terms used in tables for *Indicator 2:4* are as follows:

Expected family contribution. Before a students gets any financial aid, a "needs analysis" is performed to determine what the student and parents of dependent students should and can pay. This amount is called the expected family contribution (EFC), and is determined through an analysis of need based on taxable and nontaxable income and assets as well as family size, the number of family members attending postsecondary institutions, extraordinary medical expenses, and so forth. For dependent students the EFC consists of both a parental contribution and a separately calculated student contribution. Most students are considered dependent until they are 24 years old. The minimum student contribution in 1988–89 was $700 for freshman and $900 for other undergraduates. The Uniform Methodology (UM) was the needs analysis system that was in widespread use during the 1986–87 academic year, when the 1987 National Postsecondary Student Aid Study (NPSAS:87) was conducted (*Indicator 2:4* is based on this study). In 1988–89, the Congressional Methodology (CM) was mandated for use by the federal government in awarding campus-based aid and Stafford Loans. At this time most users switched to the Congressional Methodology. The CM largely copies the UM. In NPSAS:87, the expected family contribution was collected from institution records for students receiving financial aid, and estimated based on other information for students not receiving financial aid.

Total cost of attendance. For the purposes of *Indicator 2:4* this is defined as the costs actually incurred (and reported) by the student. This cost includes tuition, fees, room, board, books, transportation, and other miscellaneous expenses.

Net cost and *aid.* Net cost is defined as total cost less aid. For the purposes of *Indicator 2:4*, financial aid is defined to include grants and loans from all sources as well as earnings from work-study programs. Work-study is a generic term for programs designed to provide part-time employment as a source of funds to pay for postsecondary education as well as a federal program that is administered through postsecondary institutions. Net cost represents what the student and his or her parents must pay in the current year to attend a postsecondary institution.

Adjusted net cost and adjusted aid. Adjusted net cost is total cost less adjusted aid. Adjusted aid includes grants and 40 percent of loans. Grants, also known as scholarships, are funds for postsecondary education that do not have to be repaid. On the other hand, loans are borrowed money that must be repaid. Thus, for some purposes combining dollars of grants and dollars of loans may not be appropriate. Student loans usually do not accrue interest while the student is still enrolled in college, and after the student leaves college interest accrues at a rate that is lower than what can normally be obtained from banks for a non-secured loan (mortgages and automobile loans are secured). For each dollar of loan a student receives, the present value of what must be repaid is approximately 60 cents (40 cents is equivalent to a grant). The third component of aid, work-study earnings, requires the student to work and thus for some purposes should not be distinguished from earnings from other jobs. Adjusted net cost represents the present value of what the student and his or her parents must pay in the current and future years to attend a postsecondary institution.

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* Much of the information in this note is taken from Congressional Budget Office, *Student Aid and the Cost of Postsecondary Education*, Congress of the United States, January 1991.

Indicator 2:5

Table 2:5-1 Standard errors for estimated percentages in text table for *Indicator 2:5*

	Race/ethnicity			College level previous October		
Year	White, non-Hispanic	Black, non-Hispanic	Hispanic	1st year	2nd year	3rd year
1974	1.0	3.9	4.3	1.4	1.6	1.4
1975	1.0	2.8	4.9	1.2	1.6	1.4
1976	1.0	2.7	4.0	1.2	1.5	1.5
1977	1.0	3.0	4.5	1.3	1.5	1.4
1978	1.0	2.8	4.2	1.3	1.5	1.4
1979	1.0	2.9	4.4	1.3	1.5	1.5
1980	1.0	3.1	4.6	1.2	1.5	1.4
1981	1.0	2.9	4.8	1.3	1.5	1.4
1982	1.0	2.7	4.0	1.3	1.5	1.5
1983	0.9	2.9	4.1	1.3	1.5	1.4
1984	1.0	2.8	4.1	1.4	1.5	1.4
1985	0.9	3.1	4.0	1.3	1.5	1.4
1986	1.0	2.7	3.4	1.3	1.6	1.4
1987	1.0	2.8	3.3	1.2	1.5	1.5
1988	0.9	2.4	3.5	1.3	1.6	1.3
1989	0.9	2.5	3.7	1.3	1.5	1.4

SOURCE: U.S. Department of Commerce, Bureau of the Census, October Current Population Surveys.

Table 2:5-2 Continuous attendance and grade level progression rates, by sex, race/ethnicity, and grade level the previous October: October 1989

Grade last year	Total	Male	Female	White, non-Hispanic	Black, non-Hispanic	Hispanic
			Continuous attendance rate (percent)			
9-11	95.4	95.5	95.3	95.9	93.8	93.9
9	93.7	93.8	93.6	93.7	95.1	91.1
10	96.1	95.8	96.3	96.3	94.0	96.1
11	95.4	95.9	94.8	96.1	93.0	93.5
12	65.7	64.4	67.0	66.6	56.0	65.6
13-15	84.6	84.4	84.7	84.7	82.8	82.4
13	84.2	83.0	85.3	84.5	77.4	87.1
14	80.6	81.3	80.0	80.9	81.9	72.2
15	90.4	91.4	89.5	89.8	97.1	(*)
16	42.7	43.5	41.8	42.9	(*)	(*)
17	64.8	70.2	58.9	63.9	(*)	(*)
			Grade progression rate (percent)			
9-11	97.4	96.6	98.4	98.3	95.3	94.0
9	92.8	92.3	93.6	93.4	90.9	92.7
10	98.1	97.6	98.5	99.1	95.0	93.6
11	98.3	97.3	99.4	98.9	97.7	95.4
12	94.7	94.2	95.3	96.5	95.5	81.9
13-15	88.4	88.0	88.7	89.0	86.5	77.3
13	87.7	86.7	88.5	88.6	85.9	75.5
14	88.3	88.1	88.5	88.3	87.3	(*)
15	89.8	90.2	89.5	90.5	86.1	(*)
16	65.4	63.1	67.9	65.5	(*)	(*)
17	71.8	75.5	67.0	74.4	(*)	(*)

* Too few sample observations for a reliable estimate.

NOTE: The continuous attendance rate is the percentage of those enrolled the previous October who were enrolled again the following October. The grade level progression rate is the percentage of those who were enrolled both the previous and following Octobers who advanced at least one grade level.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1989 October Current Population Survey.

Table 2:5-3 Standard errors for estimated percentages in table 2:5-2

Grade last year	Total	Male	Female	White, non-Hispanic	Black, non-Hispanic	Hispanic
			Continuous attendance rate (percent)			
9-11	0.4	0.6	0.6	0.5	1.3	1.7
9	1.3	1.6	2.1	1.7	2.4	3.9
10	0.6	0.9	0.9	0.7	2.2	2.2
11	0.6	0.8	1.0	0.7	2.0	2.8
12	1.6	2.2	2.2	1.8	4.6	5.8
13-15	0.8	1.2	1.1	0.9	2.8	3.8
13	1.2	1.9	1.6	1.4	4.7	4.6
14	1.6	2.2	2.2	1.8	4.8	7.8
15	1.4	1.9	1.9	1.5	2.9	(*)
16	2.8	4.0	4.0	3.1	(*)	(*)
17	4.3	5.7	6.4	4.3	(*)	(*)
			Grade progression rate (percent)			
9-11	0.3	0.5	0.4	0.3	1.1	1.7
9	1.4	1.8	2.2	1.8	3.3	3.8
10	0.4	0.7	0.6	0.4	2.0	2.8
11	0.4	0.7	0.3	0.4	1.2	2.4
12	0.9	1.3	1.2	0.9	2.6	5.8
13-15	0.8	1.2	1.1	0.9	2.8	4.6
13	1.2	1.9	1.6	1.3	4.4	6.3
14	1.4	2.0	2.0	1.6	4.5	(*)
15	1.5	2.1	2.0	1.5	6.0	(*)
16	4.2	5.9	5.9	4.5	(*)	(*)
17	5.9	7.5	9.3	6.5	(*)	(*)

* Too few sample observations for a reliable estimate.

NOTE: The continuous attendance rate is the percentage of those enrolled the previous October who were enrolled again the following October. The grade level progression rate is the percentage of those who were enrolled both the previous and following Octobers who advanced at least one grade level.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1989 October Current Population Survey.

Supplemental note 2:5 Persistence rates

The college student persistence rate is defined as the proportion of students enrolled the previous October who were enrolled in college again the following October. Calculating this rate requires distinguishing students who were enrolled in high school, college as undergraduates, and college as graduate students. The basis for distinguishing these groups is educational attainment. However, the October Current Population Survey (CPS) reports only *current* educational attainment, so educational attainment for the previous October must be inferred.

Educational attainment in the CPS is reported as "years of schooling completed." Individuals with 12 years of schooling completed are regarded as high school graduates, 16 years completed as college graduates, and so on. Years of schooling completed is based on the responses to two questions: 1) "What is the highest grade . . . ever attended?" and 2) "Did . . . complete it?" For example, an individual who responds that the highest grade he ever attended was first year of college and that he did not complete it, is regarded as having completed 12 years of schooling.

For the purpose of calculating the persistence rate, two assumptions are made:

- First, respondents who were enrolled the previous October are assumed to have *then* reached their highest grade attended if they were not enrolled again the following October. This assumption would overstate the level for those who made the transition to the next level in mid-year.
- Second, respondents who were enrolled in October are assumed to have been in the highest year *completed* the previous October. This would understate the level for those who attended part time and had not made the transition to the next level during the previous year.

Consider three examples. First, those who were enrolled in the previous October, but not in the following October, and whose highest grade *attended* is 13 are assumed to have been freshmen in the previous October. Second, those who were enrolled in the previous October as well as the following October, and whose highest grade *completed* is 13 years of schooling, are assumed to have been freshmen in the previous October. Third, those who were enrolled in the previous October, but not in the following October, and whose highest grade *completed* is 16 years of schooling, are assumed to have been college seniors in the previous October. Some students may be misclassified, but if the extent of misclassification is not very different across groups or over time, then differences between groups and changes over time are useful, although the inferred level may be high or low.

Indicator 2:6

Table 2:6-1 Time between high school graduation and award of the baccalaureate degree, by race/ethnicity, sex, and field of study: Years of college graduation 1977 and 1986

	Less than or equal to						More than 6 years	
	4 years		5 years		6 years			
Race/ethnicity, sex, and field of study	1977	1986	1977	1986	1977	1986	1977	1986
	(percent of baccalaureate degree recipients)							
Total	53.8	45.5	70.9	65.5	77.1	73.0	22.9	27.0
Race/ethnicity								
White, non-Hispanic	55.2	47.1	72.4	67.3	78.2	74.5	21.8	25.5
Black, non-Hispanic	42.3	31.8	58.2	51.6	67.3	61.6	32.7	38.4
Hispanic	31.4	33.5	48.4	51.6	55.7	62.9	44.3	37.1
Asian	48.2	35.4	66.5	57.4	76.9	66.7	23.1	33.3
American Indian	(*)	42.4	(*)	58.5	(*)	63.6	(*)	36.4
Other	—	31.9	—	46.1	—	57.8	—	42.2
Sex								
Male	47.8	41.4	65.6	63.4	73.5	72.9	26.5	27.1
Female	61.2	49.4	77.3	67.4	81.4	73.2	18.6	26.8
Field of study								
Humanities and social/behavioral sciences	56.1	50.2	71.2	66.9	76.9	73.4	23.1	26.6
Humanities	53.9	45.6	72.4	63.6	77.2	69.8	22.8	30.2
Social/behavioral sciences	57.4	53.8	70.5	69.5	76.6	76.2	23.4	23.8
Natural and computer sciences and engineering	55.9	45.6	75.1	67.8	82.4	76.4	17.6	23.6
Natural sciences	63.5	53.3	77.7	72.7	85.3	79.6	14.7	20.4
Computer sciences and engineering	41.9	41.3	70.3	65.1	76.9	74.7	23.1	25.3
Technical/professional	51.8	43.4	69.2	63.8	75.4	71.4	24.6	28.6
Education	54.1	43.9	70.7	63.4	75.5	71.0	24.5	29.0
Business	51.8	45.5	67.9	64.4	73.3	71.2	26.7	28.8
Other technical/professional	49.8	40.0	69.1	63.2	77.1	71.8	22.9	28.2

— Not available.

* Too few sample observations for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Table 2:6-2 Standard errors for estimated percentages in table 2:6-1

	Less than or equal to						More than 6 years	
	4 years		5 years		6 years			
Race/ethnicity, sex, and field of study	1977	1986	1977	1986	1977	1986	1977	1986
	(standard error of percent)							
Total	1.2	0.7	1.1	0.7	1.0	0.7	1.0	0.7
Race/ethnicity								
White, non-Hispanic	1.2	0.7	1.1	0.7	1.0	0.6	1.0	0.6
Black, non-Hispanic	3.3	2.8	3.3	3.0	3.2	2.9	3.2	2.9
Hispanic	6.9	2.7	7.5	2.9	7.4	2.8	7.4	2.8
Asian	6.1	2.9	5.8	3.0	5.2	2.9	5.2	2.9
American Indian	(*)	5.1	(*)	5.1	(*)	5.0	(*)	5.0
Other	—	4.4	—	4.7	—	4.6	—	4.6
Sex								
Male	1.5	1.0	1.4	1.0	1.3	0.9	1.3	0.9
Female	1.5	0.8	1.3	0.8	1.2	0.7	1.2	0.7
Field of study								
Humanities and social/behavioral sciences	2.1	1.5	1.9	1.4	1.8	1.3	1.8	1.3
Humanities	3.7	2.3	3.3	2.2	3.1	2.1	3.1	2.1
Social/behavioral sciences	1.9	1.6	1.7	1.5	1.6	1.4	1.6	1.4
Natural and computer sciences and engineering	2.3	1.1	2.0	1.1	1.8	1.0	1.8	1.0
Natural sciences	2.5	1.6	2.1	1.4	1.8	1.3	1.8	1.3
Computer sciences and engineering	3.9	1.4	3.6	1.4	3.4	1.3	3.4	1.3
Technical/professional	1.4	0.8	1.3	0.8	1.2	0.8	1.2	0.8
Education	1.5	1.3	1.4	1.2	1.3	1.2	1.3	1.2
Business	2.2	1.3	2.1	1.3	2.0	1.2	2.0	1.2
Other technical/professional	2.5	1.1	2.3	1.1	2.1	1.0	2.1	1.0

— Not available.

* Too few sample observations for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Indicator 2:7

Table 2:7-1 Percentage of high school graduates 25-29 years old who have completed 4 years of college or more, by race/ethnicity and sex: 1965-1990

Year	All races			White			Black			Hispanic*		
	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female
1965	17.7	22.1	13.5	17.9	22.5	13.4	13.9	14.4	13.4	—	—	—
1966	19.7	23.7	15.9	20.0	24.4	15.8	12.4	11.0	13.6	—	—	—
1967	20.1	23.9	16.6	20.6	24.6	16.9	10.0	8.1	11.5	—	—	—
1968	20.1	24.4	15.9	20.8	25.3	16.4	9.6	9.1	10.0	—	—	—
1969	21.5	25.7	17.3	22.0	26.7	17.5	12.0	13.6	10.5	—	—	—
1970	21.7	26.1	17.4	22.2	26.9	17.4	13.1	12.3	13.8	—	—	—
1971	21.9	25.7	18.1	22.5	26.4	18.6	11.1	11.7	10.7	—	—	—
1972	23.7	27.3	20.2	24.4	28.1	20.7	13.0	11.4	14.2	—	—	—
1973	23.6	26.8	20.5	24.2	27.7	20.8	12.6	11.2	13.6	—	—	—
1974	25.3	28.7	21.8	26.4	30.1	22.7	11.6	12.4	10.9	11.2	13.1	9.3
1975	26.3	29.8	22.9	27.0	30.6	23.3	15.0	15.8	14.4	16.8	19.6	14.0
1976	28.0	32.0	24.1	28.7	32.9	24.3	17.6	16.5	18.4	12.7	17.9	8.2
1977	28.1	31.2	25.1	29.1	32.5	25.7	16.9	16.5	17.3	11.6	11.7	11.6
1978	27.3	30.2	24.4	28.4	31.8	24.9	15.2	13.7	16.5	17.1	16.4	17.8
1979	27.0	29.9	24.2	27.8	30.8	24.9	16.6	18.1	15.5	12.7	14.2	11.5
1980	26.3	28.1	24.5	27.3	29.4	25.3	15.1	13.9	16.0	13.2	14.7	11.8
1981	24.7	26.6	22.8	25.6	27.7	23.4	14.9	15.4	14.5	12.5	14.4	10.9
1982	25.2	27.0	23.4	26.1	28.2	24.0	15.5	14.6	16.2	15.9	17.6	14.4
1983	26.2	27.8	24.6	26.9	28.8	25.1	16.3	16.5	16.1	17.9	16.8	19.0
1984	25.5	27.1	24.0	26.6	28.0	25.1	14.7	17.0	12.9	16.5	16.8	16.3
1985	25.7	26.9	24.6	26.7	28.0	25.4	14.3	12.8	15.6	18.1	18.6	17.8
1986	26.0	26.7	25.3	27.2	28.2	26.2	14.2	11.7	16.4	15.3	15.4	15.2
1987	25.6	26.1	25.2	26.7	27.2	26.2	13.6	13.7	13.6	14.7	15.7	13.7
1988	26.4	27.6	25.2	27.2	28.3	26.1	15.2	15.8	14.6	18.1	19.8	16.4
1989	27.5	28.5	26.5	28.5	29.5	27.6	15.4	14.8	15.9	16.4	15.7	17.1
1990	27.1	28.0	26.2	28.1	28.6	27.6	16.4	18.6	14.5	14.4	13.6	15.4

— Not available

* Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March . . .," various years; March Current Population Surveys.

Table 2:7-2 Percentage of high school graduates 25-29 years old who have completed 1 year of college or more, by race/ethnicity and sex: 1965–1990

Year	All races			White			Black			Hispanic*		
	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female
1965	35.6	41.6	29.9	36.0	42.2	30.0	30.4	32.2	29.0	—	—	—
1966	37.0	42.4	31.9	37.7	43.4	32.4	24.9	27.1	23.0	—	—	—
1967	39.7	44.7	35.1	40.6	45.9	35.7	27.3	25.0	29.1	—	—	—
1968	39.1	44.1	34.2	40.0	45.4	34.7	25.5	24.9	26.1	—	—	—
1969	40.9	47.3	34.7	41.9	48.8	35.1	28.2	30.4	26.0	—	—	—
1970	41.6	47.2	35.9	42.2	48.4	35.9	30.7	28.8	32.4	—	—	—
1971	43.5	48.5	38.5	44.4	49.6	39.0	30.2	28.2	31.8	—	—	—
1972	45.1	50.7	39.5	45.9	51.9	39.9	33.1	31.5	34.3	—	—	—
1973	45.3	51.4	39.4	46.0	52.5	39.5	33.3	33.5	33.2	—	—	—
1974	48.9	53.8	44.1	49.9	55.1	44.8	35.5	37.4	33.8	38.7	46.6	31.0
1975	50.1	56.0	44.1	50.8	57.0	44.4	38.9	41.3	36.9	40.4	49.3	31.6
1976	52.1	58.2	46.0	53.1	59.5	46.7	37.4	40.7	34.9	36.4	42.3	31.2
1977	53.2	58.0	48.5	54.3	59.2	49.2	41.8	44.3	39.6	41.1	42.9	39.3
1978	54.4	59.3	49.6	55.3	60.8	49.8	44.9	45.5	44.4	43.7	47.2	40.3
1979	54.1	57.7	50.6	55.1	59.0	51.2	42.0	41.1	42.7	43.9	50.7	38.1
1980	52.3	55.8	49.0	53.1	56.7	49.5	42.4	43.7	41.4	39.9	45.3	34.9
1981	50.1	52.7	47.5	50.6	53.4	47.7	42.6	42.9	42.2	39.6	41.7	37.7
1982	49.9	51.5	48.3	50.1	51.6	48.5	45.7	47.3	44.4	39.5	40.5	38.7
1983	50.6	52.1	49.0	51.1	52.8	49.4	41.8	42.2	41.5	43.1	41.2	44.8
1984	50.1	50.9	49.2	50.7	51.5	49.9	41.7	41.8	41.7	44.9	47.5	42.2
1985	50.8	51.5	50.1	51.3	52.1	50.6	42.6	42.3	42.9	44.1	45.9	42.6
1986	51.0	51.4	50.7	51.7	52.1	51.2	43.6	42.0	45.1	42.9	42.8	43.0
1987	50.7	50.4	51.0	50.9	51.0	50.8	43.1	38.8	46.9	44.7	46.3	43.2
1988	50.8	51.6	50.1	51.2	51.7	50.8	41.4	43.5	39.7	44.8	44.2	45.6
1989	51.2	52.0	50.5	52.1	52.7	51.5	41.7	41.3	42.0	44.2	44.6	43.7
1990	52.0	51.8	52.1	52.5	52.3	52.7	44.1	43.2	44.9	40.5	41.0	40.0

— Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March . . .," various years; March Current Population Surveys.

Indicator 2:7

Table 2:7-3 Standard errors for estimated percentages in table 2:7-1

Year	All races			White			Black			Hispanic*		
	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female
1965	0.67	1.00	0.77	0.69	1.01	0.80	2.15	3.22	2.83	—	—	—
1966	0.69	1.02	0.81	0.71	1.03	0.84	2.08	2.85	2.93	—	—	—
1967	0.68	1.00	0.80	0.70	1.00	0.85	1.76	2.39	2.48	—	—	—
1968	0.66	0.96	0.77	0.68	0.97	0.81	1.67	2.32	2.34	—	—	—
1969	0.65	0.95	0.77	0.67	0.95	0.81	1.78	2.60	2.36	—	—	—
1970	0.64	0.93	0.75	0.66	0.92	0.79	1.79	2.53	2.49	—	—	—
1971	0.62	0.90	0.74	0.64	0.89	0.79	1.63	2.47	2.12	—	—	—
1972	0.62	0.89	0.75	0.64	0.88	0.80	1.67	2.38	2.28	—	—	—
1973	0.60	0.86	0.73	0.62	0.86	0.78	1.60	2.25	2.20	—	—	—
1974	0.60	0.85	0.73	0.62	0.86	0.78	1.47	2.18	1.93	2.40	3.42	2.90
1975	0.59	0.84	0.72	0.61	0.84	0.77	1.57	2.35	2.06	2.83	3.98	3.46
1976	0.58	0.83	0.71	0.60	0.82	0.76	1.60	2.36	2.14	2.34	3.67	2.45
1977	0.58	0.81	0.71	0.60	0.82	0.77	1.52	2.17	2.07	2.24	2.96	2.95
1978	0.57	0.80	0.70	0.60	0.81	0.76	1.41	1.99	1.94	2.47	3.22	3.31
1979	0.56	0.79	0.69	0.59	0.80	0.75	1.46	2.25	1.88	2.20	3.17	2.67
1980	0.54	0.80	0.72	0.57	0.82	0.78	1.31	2.03	1.91	2.06	3.10	2.73
1981	0.52	0.77	0.69	0.55	0.79	0.75	1.28	2.02	1.82	1.91	2.96	2.47
1982	0.51	0.77	0.69	0.55	0.79	0.75	1.25	1.92	1.82	2.03	3.08	2.69
1983	0.51	0.77	0.69	0.55	0.79	0.76	1.26	2.00	1.80	2.19	3.06	3.12
1984	0.50	0.75	0.68	0.54	0.77	0.75	1.19	2.01	1.60	2.14	3.01	3.03
1985	0.50	0.75	0.68	0.54	0.78	0.75	1.16	1.73	1.73	1.94	2.87	2.62
1986	0.50	0.73	0.68	0.54	0.77	0.75	1.12	1.58	1.75	1.74	2.48	2.44
1987	0.50	0.73	0.68	0.54	0.77	0.75	1.10	1.72	1.60	1.68	2.44	2.29
1988	0.48	0.72	0.68	0.54	0.78	0.75	1.17	1.86	1.66	1.74	2.55	2.36
1989	0.50	0.73	0.69	0.56	0.80	0.77	1.17	1.84	1.69	1.66	2.27	2.43
1990	0.50	0.73	0.69	0.55	0.79	0.77	1.20	1.97	1.64	1.58	2.15	2.33

— Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March . . . ," various years; March Current Population Surveys.

Table 2:7-4 Standard errors for estimated percentages in table 2:7-2

Year	All races			White			Black			Hispanic*		
	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female
1965	0.84	1.19	1.03	0.87	1.19	1.08	2.86	4.28	3.77	—	—	—
1966	0.84	1.19	1.03	0.86	1.19	1.08	2.73	4.05	3.60	—	—	—
1967	0.83	1.17	1.02	0.85	1.16	1.08	2.62	3.79	3.53	—	—	—
1968	0.80	1.11	0.99	0.82	1.11	1.05	2.47	3.47	3.43	—	—	—
1969	0.78	1.09	0.97	0.80	1.07	1.02	2.46	3.50	3.38	—	—	—
1970	0.76	1.05	0.95	0.78	1.04	1.00	2.45	3.48	3.38	—	—	—
1971	0.75	1.03	0.94	0.77	1.01	1.00	2.38	3.46	3.20	—	—	—
1972	0.73	1.00	0.91	0.74	0.98	0.96	2.34	3.48	3.10	—	—	—
1973	0.70	0.97	0.88	0.72	0.96	0.93	2.27	3.36	3.02	—	—	—
1974	0.69	0.94	0.88	0.71	0.93	0.93	2.19	3.20	2.93	3.71	5.05	4.63
1975	0.67	0.91	0.85	0.69	0.90	0.91	2.14	3.17	2.84	3.72	5.01	4.63
1976	0.65	0.87	0.83	0.67	0.86	0.88	2.04	3.12	2.63	3.38	4.74	4.15
1977	0.64	0.86	0.82	0.66	0.86	0.88	1.99	2.90	2.68	3.44	4.56	4.50
1978	0.64	0.85	0.81	0.66	0.85	0.87	1.95	2.89	2.60	3.26	4.34	4.24
1979	0.63	0.85	0.81	0.65	0.85	0.86	1.94	2.88	2.57	3.27	4.54	4.06
1980	0.61	0.89	0.83	0.63	0.89	0.90	1.81	2.90	2.57	2.98	4.35	4.03
1981	0.60	0.87	0.82	0.63	0.88	0.88	1.77	2.77	2.56	2.82	4.15	3.84
1982	0.59	0.86	0.81	0.62	0.88	0.88	1.71	2.71	2.45	2.72	3.97	3.73
1983	0.59	0.85	0.80	0.62	0.87	0.87	1.69	2.65	2.42	2.82	4.03	3.95
1984	0.58	0.84	0.79	0.61	0.86	0.86	1.66	2.64	2.36	2.86	4.03	4.05
1985	0.58	0.84	0.79	0.61	0.87	0.86	1.64	2.56	2.36	2.49	3.67	3.39
1986	0.57	0.83	0.78	0.61	0.86	0.85	1.59	2.43	2.35	2.39	3.40	3.37
1987	0.57	0.83	0.78	0.61	0.86	0.86	1.59	2.43	2.33	2.35	3.35	3.30
1988	0.56	0.80	0.78	0.61	0.87	0.85	1.60	2.52	2.30	2.25	3.18	3.18
1989	0.56	0.81	0.79	0.61	0.88	0.86	1.60	2.55	2.27	2.23	3.10	3.20
1990	0.56	0.81	0.79	0.61	0.88	0.86	1.60	2.51	2.31	2.21	3.09	3.17

— Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March . . .," various years; March Current Population Surveys.

Indicator 2:7

Table 2:7-5 Percentage of 25- to 29-year-olds who have completed 12 or more years of school, by race/ethnicity and sex: 1965–1990

Year	All races			White			Black			Hispanic[*]		
	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female
1965	70.3	70.5	70.1	72.8	72.7	72.8	50.3	50.3	50.4	—	—	—
1966	71.0	70.9	71.2	73.8	73.2	74.4	47.9	48.9	47.0	—	—	—
1967	72.6	72.4	72.9	74.8	74.3	75.3	53.5	51.7	55.0	—	—	—
1968	73.2	73.7	72.7	75.3	75.5	75.0	55.7	58.1	53.6	—	—	—
1969	74.7	75.6	73.8	77.0	77.5	76.6	55.9	59.8	52.3	—	—	—
1970	75.4	76.6	74.2	77.8	79.2	76.4	56.3	54.5	57.9	—	—	—
1971	77.2	78.1	76.4	79.5	80.8	78.3	57.6	54.1	60.7	—	—	—
1972	79.8	80.5	79.2	81.5	82.3	80.8	64.2	61.8	66.2	—	—	—
1973	80.2	80.6	79.8	82.0	82.4	81.6	64.1	63.1	64.9	—	—	—
1974	84.6	88.8	80.8	83.4	84.1	82.7	68.3	71.1	66.0	52.3	55.1	49.9
1975	83.1	84.5	81.8	84.4	85.7	83.2	71.0	72.2	70.1	51.6	51.1	52.1
1976	84.7	86.0	83.5	85.9	87.3	84.6	73.9	72.5	74.9	58.0	57.6	58.4
1977	85.4	86.6	84.2	86.8	87.6	86.0	74.5	77.5	72.0	58.3	62.1	54.8
1978	85.3	86.0	84.6	86.3	86.8	85.8	77.3	78.5	76.3	56.6	58.5	54.8
1979	85.6	86.3	84.9	87.0	87.6	86.4	74.7	73.9	75.4	57.0	55.5	58.4
1980	85.4	85.4	85.5	86.9	86.8	87.0	76.5	74.7	78.0	57.9	56.9	59.0
1981	86.3	86.5	86.1	87.5	87.6	87.5	77.2	78.4	76.3	59.8	59.1	60.4
1982	86.2	86.4	86.1	86.9	87.0	86.8	80.9	80.5	81.3	60.8	60.5	61.2
1983	86.0	86.0	86.0	86.9	86.9	86.9	79.4	78.8	79.8	58.5	57.9	59.1
1984	85.9	85.6	86.3	86.9	86.8	87.0	79.0	76.0	81.5	54.2	56.7	51.8
1985	86.2	85.9	86.4	86.8	86.4	87.3	80.6	80.8	80.4	60.9	58.6	63.0
1986	86.1	85.9	86.4	86.5	85.6	87.4	83.4	86.6	80.7	59.1	58.2	60.0
1987	86.0	85.5	86.4	86.3	85.6	87.1	83.3	84.8	82.0	59.9	58.6	61.2
1988	85.9	84.7	87.0	86.6	85.1	88.2	80.9	80.9	80.8	62.3	59.9	64.9
1989	85.3	84.1	86.5	85.8	84.5	87.1	81.9	79.9	83.6	60.6	60.3	61.0
1990	85.7	84.4	87.0	86.3	84.6	88.1	81.7	81.5	81.8	58.5	57.1	60.1

— Not available.

[*] Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March . . . ," various years; March Current Population Surveys.

Indicator 2:7

Table 2:7-6 Standard errors for estimated percentages in table 2:7-5

Year	All races			White			Black			Hispanic*		
	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female
1965	0.6	0.9	0.9	0.6	0.9	0.9	2.2	3.2	2.9	—	—	—
1966	0.6	0.9	0.8	0.6	0.9	0.9	2.1	3.2	2.9	—	—	—
1967	0.6	0.8	0.8	0.6	0.9	0.8	2.1	3.1	2.9	—	—	—
1968	0.6	0.8	0.8	0.6	0.8	0.8	2.1	3.0	2.8	—	—	—
1969	0.5	0.8	0.8	0.6	0.8	0.8	2.0	2.9	2.8	—	—	—
1970	0.5	0.7	0.7	0.5	0.7	0.8	2.0	2.8	2.7	—	—	—
1971	0.5	0.7	0.7	0.5	0.7	0.7	1.9	2.8	2.6	—	—	—
1972	0.5	0.7	0.7	0.5	0.7	0.7	1.9	2.9	2.5	—	—	—
1973	0.5	0.6	0.6	0.5	0.7	0.7	1.8	2.7	2.5	—	—	—
1974	0.4	0.5	0.6	0.4	0.6	0.6	1.7	2.5	2.4	2.6	3.7	3.5
1975	0.4	0.6	0.6	0.4	0.6	0.6	1.7	2.4	2.2	2.5	3.6	3.6
1976	0.4	0.5	0.6	0.4	0.5	0.6	1.6	2.4	2.1	2.5	3.6	3.4
1977	0.4	0.5	0.5	0.4	0.5	0.6	1.5	2.1	2.1	2.4	3.5	3.4
1978	0.4	0.5	0.5	0.4	0.5	0.6	1.4	2.1	1.9	2.3	3.3	3.2
1979	0.4	0.5	0.5	0.4	0.5	0.5	1.5	2.2	1.9	2.3	3.4	3.1
1980	0.4	0.6	0.5	0.4	0.6	0.6	1.4	2.2	1.9	2.3	3.3	3.2
1981	0.4	0.5	0.5	0.4	0.5	0.5	1.4	2.0	1.9	2.2	3.2	3.0
1982	0.4	0.5	0.5	0.4	0.6	0.6	1.3	1.9	1.7	2.1	3.1	2.9
1983	0.4	0.5	0.5	0.4	0.5	0.5	1.3	1.9	1.8	2.1	3.1	3.0
1984	0.4	0.5	0.5	0.4	0.5	0.5	1.3	2.0	1.7	2.1	3.0	3.0
1985	0.4	0.5	0.5	0.4	0.6	0.5	1.2	1.8	1.7	1.9	2.8	2.6
1986	0.4	0.5	0.5	0.4	0.6	0.5	1.2	1.6	1.7	1.8	2.6	2.6
1987	0.4	0.5	0.5	0.4	0.6	0.5	1.2	1.7	1.6	1.8	2.5	2.5
1988	0.4	0.5	0.5	0.4	0.6	0.5	1.2	1.8	1.7	1.7	2.4	2.5
1989	0.4	0.5	0.5	0.4	0.6	0.5	1.2	1.9	1.6	1.7	2.4	2.5
1990	0.4	0.5	0.5	0.4	0.6	0.5	1.2	1.8	1.6	1.7	2.3	2.5

— Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March . . .," various years; March Current Population Surveys.

Indicator 2:8

Table 2:8-1 Higher education graduates as a percent of all persons 22 years old, by field of study, sex, and country: Academic years beginning 1970, 1975, 1980, and 1987

Sex and country	Year	Higher education graduates All fields	Engineering	Total Science[1]	Natural Sciences	Population age 22 (thousands)[2]
Both sexes						
USA	1987	25.9	2.3	4.7	1.4	3,836
Japan	1988	22.1	4.4	2.0	0.6	1,742
W. Germany	1985	12.8	2.1	2.1	0.6	1,039
England	1986	14.3	1.8	3.6	2.8	959
France	1987	14.0	1.7	4.3	—	859
Canada	1987	24.4	1.8	3.1	0.5	423
Males						
USA	1987	24.8	4.0	4.2	1.6	1,921
Japan	1988	32.1	8.5	2.7	0.9	885
W. Germany	1985	15.3	3.9	2.8	0.9	534
England	1986	15.6	3.2	4.1	3.4	490
France	1987	14.1	2.8	5.2	—	433
Canada	1987	22.7	3.2	3.8	0.8	213
Females						
USA	1987	27.0	0.6	5.1	1.2	1,915
Japan	1988	11.8	0.3	1.3	0.2	857
W. Germany	1985	10.2	0.2	1.4	0.3	505
England	1986	13.0	0.3	3.0	2.2	469
France	1987	13.9	0.6	3.4	—	426
Canada	1987	26.1	0.4	2.3	0.3	209
Both sexes						
USA	1980	21.6	1.7	4.1	1.6	4,323
Japan	1980	24.3	4.8	1.9	0.6	1,568
W. Germany	1980	11.4	2.0	1.7	0.5	951
England	1980	11.3	1.6	3.0	1.7	817
France	1981	11.9	1.4	3.5	—	846
Canada	1980	20.8	1.4	3.0	0.9	469
Males						
USA	1980	21.7	3.1	3.9	1.9	2,165
Japan	1980	36.1	9.3	2.6	0.9	792
W. Germany	1980	14.5	3.8	2.4	0.7	492
England	1980	—	—	—	—	414
France	1981	12.7	2.4	4.4	—	425
Canada	1980	20.6	2.7	3.0	1.2	235
Females						
USA	1980	21.6	0.4	4.4	1.2	2,158
Japan	1980	12.2	0.1	1.2	0.2	776
W. Germany	1980	8.2	0.2	0.9	0.2	459
England	1980	—	—	—	—	403
France	1981	11.1	0.4	2.5	—	421
Canada	1980	21.0	0.2	3.0	0.7	234

Indicator 2:8

Table 2:8-1 Higher education graduates as a percent of all persons 22 years old, by field of study, sex, and country: Academic years beginning 1970, 1975, 1980, and 1987—Continued

Sex and country	Year	Higher education graduates				Population age 22 (thousands)[2]
		All fields	Engineering	Total Science[1]	Natural Sciences	
Both sexes						
USA	1975	23.4	1.2	4.3	1.9	3,959
Japan	1975	17.4	3.7	1.2	0.4	1,814
W. Germany	1975	9.1	0.5	1.4	0.4	862
France	1975	9.3	1.2	3.3	0.8	842
Canada	1976	22.0	1.1	2.9	1.3	427
Males						
USA	1975	25.5	2.3	4.8	2.7	1,979
Japan	1975	27.1	7.2	1.7	0.7	913
W. Germany	1975	11.1	1.0	2.3	0.7	438
France	1975	10.1	2.1	4.1	1.0	425
Canada	1976	23.4	2.1	3.2	1.9	213
Females						
USA	1975	21.3	0.1	3.9	1.2	1,980
Japan	1975	7.6	0.1	0.7	0.1	902
W. Germany	1975	7.0	0.0	0.5	0.1	423
France	1975	8.6	0.2	2.4	0.7	417
Canada	1976	20.6	0.0	2.7	0.7	214
Both sexes						
USA	1970	23.7	1.4	3.5	1.6	3,541
Japan	1970	11.4	2.3	0.8	0.3	2,131
W. Germany	1969	15.3	1.1	2.6	0.8	378
England	1970	7.4	1.2	2.4	1.8	745
France	1972	10.1	1.3	2.9	1.7	757
Canada	1970	7.9	0.5	8.4	7.9	847
Males						
USA	1970	27.4	2.9	4.6	2.5	1,735
Japan	1970	18.1	4.6	1.1	0.5	1,069
Females						
USA	1970	20.2	0.0	2.4	0.7	1,805
Japan	1970	4.6	0.0	0.5	0.1	1,062

— Not available.

[1] Total science includes natural sciences (life and physical), mathematics, computer and information sciences, health sciences and allied fields, and agriculture sciences and natural resources.

[2] Estimated by the number of 20- to 24-year-olds at the end of the academic year divided by 5. When population data for the end of the academic year were not available, the year before or after was used.

SOURCE: Unesco *Statistical Yearbook, 1989* and earlier editions; U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1989*; U.S. Department of Commerce, Bureau of the Census, unpublished tables.

Supplemental note 2:8 Sources of data

Sources of data used in *Indicator 2:8* are as follows:

Sources of U.S. data. All data on number of graduates for the U.S. are taken from the *Digest of Education Statistics, 1990*, Tables 220, 241, 245, 247, 252, 253, 255, and 256. Population data for the U.S. is the total resident population in July of the year ending the academic year and is taken from *U.S. Population Estimates, by Age, Sex, Race, and Hispanic Origin: 1989, Current Population Reports*, Series P-25, No. 1057 and earlier editions. The modal age of college graduation in the U.S. is 22 which is estimated by the number of 20- to 24-year-olds in July of the year ending the academic year divided by 5.

Sources of data for other countries. All data on number of university graduates for the other countries is taken from the Unesco *Statistical Yearbook*, 1990 and earlier editions, table on education at the third level. Population data for other countries was provided by the Bureau of the Census in unpublised tabulations. If population estimates were not available for the year ending the academic year, the closest available year was used.

Indicator 2:9

Table 2:9-1 Minority field concentration ratio at the bachelor's degree level: Selected academic years ending 1977–1989

Field of study	1977	1979	1981	1985	1987	1989
Black concentration ratio						
Humanities and social/behavioral sciences	1.02	1.03	1.01	0.98	0.94	0.92
Humanities	0.69	0.78	0.74	0.83	0.83	0.80
Social and behavioral sciences	1.32	1.27	1.27	1.13	1.06	1.04
Natural and computer sciences and engineering	0.60	0.61	0.66	0.75	0.90	0.94
Natural sciences	0.65	0.69	0.74	0.81	0.87	0.91
Life sciences	0.70	0.77	0.81	0.92	0.92	1.00
Physical sciences	0.45	0.44	0.57	0.58	0.73	0.72
Mathematics	0.78	0.85	0.82	0.91	0.93	0.95
Computer sciences and engineering	0.51	0.51	0.59	0.71	0.92	0.96
Computer and information sciences	0.91	0.91	0.83	0.98	1.44	1.68
Engineering	0.45	0.45	0.54	0.59	0.71	0.72
Technical/professional	1.11	1.11	1.11	1.11	1.07	1.06
Education	1.42	1.40	1.35	1.01	0.81	0.71
Business and other technical/professional	0.98	1.00	1.04	1.14	1.12	1.15
Business and management	1.03	1.01	1.02	1.09	1.07	1.07
Other technical/professional	0.93	1.00	1.06	1.19	1.20	1.25
Hispanic concentration ratio						
Humanities and social/behavioral sciences	1.23	1.22	1.20	1.15	1.11	1.14
Humanities	1.17	1.15	1.11	1.09	1.10	1.10
Social and behavioral sciences	1.29	1.28	1.29	1.20	1.13	1.17
Natural and computer sciences and engineering	0.85	0.88	0.91	0.92	1.05	1.05
Natural sciences	0.82	0.89	0.94	0.95	0.98	1.00
Life sciences	0.89	1.04	1.13	1.25	1.26	1.25
Physical sciences	0.71	0.66	0.70	0.64	0.77	0.76
Mathematics	0.76	0.76	0.72	0.67	0.62	0.71
Computer sciences and engineering	0.90	0.86	0.87	0.91	1.09	1.09
Computer and information sciences	0.73	0.84	0.89	0.84	1.11	1.15
Engineering	0.92	0.86	0.87	0.94	1.09	1.06
Technical/professional	0.89	0.91	0.92	0.95	0.92	0.90
Education	1.05	1.11	1.12	1.04	0.89	0.75
Business and other technical/professional	0.82	0.84	0.86	0.93	0.93	0.94
Business and management	0.84	0.85	0.87	0.94	0.97	0.97
Other technical/professional	0.80	0.83	0.85	0.93	0.87	0.90

NOTE: The minority field concentration ratio is calculated as: the percent of a minority group earning bachelor's degrees who majored in a selected field divided by the percent of whites earning bachelor's degrees who majored in the same field. Example: The 1989 black to white concentration ratio for education = 7.3/10.2 = .71. As measured here, blacks are non-Hispanic.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:9-2 Percentage distribution of bachelor's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
White, non-Hispanic						
Number of degrees	805,186	799,617	807,319	826,106	841,820	858,186
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	33.7	31.2	29.5	27.1	28.2	30.5
Humanities	16.2	15.0	14.7	13.7	14.1	15.1
Social and behavioral sciences	17.5	16.1	14.9	13.4	14.1	15.4
Natural and computer sciences and engineering	15.8	16.6	17.5	20.9	19.7	16.9
Natural sciences	10.0	9.2	8.4	7.8	7.4	6.5
Life sciences	5.9	5.3	4.6	3.9	3.7	3.4
Physical sciences	2.5	2.6	2.6	2.5	2.0	1.7
Mathematics	1.6	1.3	1.2	1.5	1.6	1.5
Computer sciences and engineering	5.8	7.4	9.1	13.0	12.3	10.4
Computer and information sciences	0.7	0.9	1.6	3.8	3.6	2.6
Engineering	5.1	6.5	7.5	9.3	8.7	7.7
Technical/professional	50.5	52.3	52.9	52.0	52.1	52.6
Education	15.5	13.6	11.6	9.4	9.3	10.3
Business and other technical/professional	34.9	38.6	41.3	42.6	42.9	42.3
Business and management	16.5	18.9	21.6	23.8	24.4	24.2
Other technical/professional	18.5	19.8	19.8	18.8	18.5	18.1
Black, non-Hispanic						
Number of degrees	58,515	60,130	60,673	57,473	56,555	58,016
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	34.4	32.0	29.7	26.6	26.6	28.2
Humanities	11.2	11.7	10.9	11.3	11.6	12.1
Social and behavioral sciences	23.1	20.4	18.9	15.3	15.0	16.1
Natural and computer sciences and engineering	9.4	10.1	11.5	15.6	17.8	15.9
Natural sciences	6.5	6.4	6.2	6.3	6.4	6.0
Life sciences	4.1	4.1	3.7	3.6	3.4	3.4
Physical sciences	1.1	1.1	1.5	1.4	1.5	1.2
Mathematics	1.2	1.1	1.0	1.3	1.5	1.4
Computer sciences and engineering	3.0	3.8	5.3	9.2	11.4	10.0
Computer and information sciences	0.6	0.8	1.3	3.7	5.2	4.4
Engineering	2.3	2.9	4.0	5.5	6.2	5.6
Technical/professional	56.2	57.8	58.7	57.9	55.6	55.9
Education	22.1	19.1	15.6	9.5	7.5	7.3
Business and other technical/professional	34.1	38.7	43.1	48.4	48.1	48.6
Business and management	17.0	19.0	22.1	26.1	26.0	26.0
Other technical/professional	17.1	19.7	21.0	22.3	22.1	22.6
Index of dissimilarity: Black/white*	12.7	9.9	9.7	7.7	7.7	8.7

Table 2:9-2 Percentage distribution of bachelor's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989—Continued

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
Hispanic						
Number of degrees	18,663	20,029	21,832	25,874	26,990	29,800
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	41.6	37.9	35.5	31.1	31.4	34.7
Humanities	19.0	17.3	16.3	15.0	15.5	16.6
Social and behavioral sciences	22.6	20.6	19.2	16.1	15.9	18.1
Natural and computer sciences and engineering	13.5	14.5	15.9	19.3	20.7	17.8
Natural sciences	8.2	8.2	7.9	7.4	7.2	6.5
Life sciences	5.3	5.5	5.2	4.8	4.7	4.2
Physical sciences	1.8	1.7	1.9	1.6	1.6	1.3
Mathematics	1.2	1.0	0.8	1.0	1.0	1.0
Computer sciences and engineering	5.3	6.4	7.9	11.9	13.4	11.3
Computer and information sciences	0.5	0.8	1.4	3.2	4.0	3.0
Engineering	4.8	5.6	6.6	8.7	9.5	8.2
Technical/professional	44.9	47.5	48.6	49.6	47.9	47.5
Education	16.3	15.1	13.0	9.8	8.2	7.7
Business and other technical/professional	28.6	32.4	35.6	39.8	39.7	39.8
Business and management	13.9	16.0	18.8	22.3	23.7	23.4
Other technical/professional	14.7	16.5	16.7	17.5	16.0	16.4
Index of dissimilarity: Hispanic/white*	8.7	8.5	8.0	5.3	5.3	5.9

*The index of dissimilarity is calculated as: the sum of the absolute differences between the proportion of minority and white students majoring in each of the fields divided by 2. It was calculated here from the 10 most detailed categories shown above. The index represents the percentage of the minority group who would have to change fields in order for the group to have the identical field distribution of white students.

NOTE: Distributions for 1985 and later years include degrees for which missing race/ethnicity data could be imputed. The number of degrees reported for 1977 and 1979 exclude those conferred by U.S. Service Schools (0.4 percent or less of degrees).

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:9-3 Number of bachelor's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
White, non-Hispanic						
Total degrees	805,186	799,617	807,319	826,106	841,820	858,186
Humanities and social/behavioral sciences	271,490	249,100	238,522	224,152	237,293	261,795
Humanities	130,327	120,305	118,286	113,084	118,620	129,282
Social and behavioral sciences	141,163	128,795	120,236	111,068	118,673	132,513
Natural and computer sciences and engineering	127,177	132,701	141,380	172,388	165,533	144,909
Natural sciences	80,313	73,523	67,967	64,629	61,994	55,885
Life sciences	47,623	42,705	37,276	31,807	31,279	28,896
Physical sciences	20,189	20,650	21,246	20,660	17,159	14,502
Mathematics	12,501	10,168	9,445	12,162	13,556	12,487
Computer sciences and engineering	46,864	59,178	73,413	107,759	103,539	89,024
Computer and information sciences	5,473	7,384	12,565	31,321	30,251	22,515
Engineering	41,391	51,794	60,848	76,438	73,288	66,509
Technical/professional	406,519	417,816	427,417	429,566	438,994	451,482
Education	125,148	108,949	93,724	77,531	78,216	88,152
Business and other technical/professional	281,371	308,867	333,693	352,035	360,778	363,330
Business and management	132,814	150,759	174,198	196,915	205,118	207,824
Other technical/professional	148,557	158,108	159,495	155,120	155,660	155,506
Black, non-Hispanic						
Total degrees	58,515	60,130	60,673	57,473	56,555	58,016
Humanities and social/behavioral sciences	20,107	19,266	18,045	15,272	15,060	16,338
Humanities	6,567	7,014	6,608	6,505	6,583	7,025
Social and behavioral sciences	13,540	12,252	11,437	8,767	8,477	9,313
Natural and computer sciences and engineering	5,514	6,091	6,994	8,942	10,051	9,247
Natural sciences	3,785	3,830	3,759	3,640	3,622	3,453
Life sciences	2,413	2,487	2,269	2,045	1,932	1,944
Physical sciences	665	691	906	829	844	708
Mathematics	707	652	584	766	846	801
Computer sciences and engineering	1,729	2,261	3,235	5,302	6,429	5,794
Computer and information sciences	361	505	786	2,143	2,928	2,557
Engineering	1,368	1,756	2,449	3,159	3,501	3,237
Technical/professional	32,894	34,773	35,634	33,259	31,444	32,431
Education	12,922	11,509	9,494	5,456	4,253	4,233
Business and other technical/professional	19,972	23,264	26,140	27,803	27,191	28,198
Business and management	9,976	11,430	13,400	14,999	14,686	15,088
Other technical/professional	9,996	11,834	12,740	12,804	12,505	13,110

Table 2:9-3 Number of bachelor's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989—Continued

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
Hispanic						
Total degrees	18,663	20,029	21,832	25,874	26,990	29,800
Humanities and social/behavioral sciences	7,764	7,594	7,754	8,049	8,468	10,332
Humanities	3,537	3,469	3,561	3,872	4,184	4,941
Social and behavioral sciences	4,227	4,125	4,193	4,177	4,284	5,391
Natural and computer sciences and engineering	2,514	2,914	3,469	4,983	5,581	5,308
Natural sciences	1,534	1,642	1,734	1,915	1,951	1,948
Life sciences	981	1,109	1,144	1,241	1,259	1,254
Physical sciences	332	339	405	417	423	384
Mathematics	221	194	185	257	269	310
Computer sciences and engineering	980	1,272	1,735	3,068	3,630	3,360
Computer and information sciences	93	155	302	826	1,077	902
Engineering	887	1,117	1,433	2,242	2,553	2,458
Technical/professional	8,385	9,521	10,609	12,842	12,941	14,160
Education	3,050	3,029	2,847	2,533	2,223	2,293
Business and other technical/professional	5,335	6,492	7,762	10,309	10,718	11,867
Business and management	2,588	3,196	4,114	5,771	6,397	6,987
Other technical/professional	2,747	3,296	3,648	4,538	4,321	4,880

NOTE: Distributions for 1985 and later years include degrees for which missing race/ethnicity data could be imputed. The number of degrees reported for 1977 and 1979 exclude those conferred by U.S. Service Schools (0.4 percent or less of degrees).

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferrred, various years.

Indicator 2:10

Table 2:10-1 Female field concentration ratio at the bachelor's degree level, by field of study: Academic years ending 1971–1989

Field of study	1971	1972	1973	1974	1975
Humanities and social/behavioral sciences	1.15	1.13	1.12	1.12	1.13
Humanities	1.84	1.76	1.70	1.63	1.59
Social and behavioral sciences	0.81	0.80	0.81	0.84	0.85
Natural and computer sciences and engineering	0.28	0.28	0.29	0.31	0.33
Natural sciences	0.50	0.52	0.52	0.54	0.55
Life sciences	0.54	0.54	0.54	0.57	0.60
Physical sciences	0.21	0.23	0.22	0.25	0.27
Mathematics	0.80	0.83	0.86	0.87	0.87
Computer sciences and engineering	0.02	0.02	0.03	0.04	0.05
Computer and information sciences	0.21	0.20	0.22	0.25	0.28
Engineering	0.01	0.01	0.02	0.02	0.03
Technical/professional	1.28	1.28	1.28	1.26	1.24
Education	3.81	3.70	3.56	3.49	3.32
Business and other technical/professional	0.48	0.49	0.55	0.62	0.71
Business and management	0.13	0.14	0.15	0.19	0.23
Other technical/professional	1.46	1.42	1.49	1.50	1.55

Field of study	1976	1977	1978	1979	1980
Humanities and social/behavioral sciences	1.14	1.16	1.16	1.17	1.19
Humanities	1.54	1.50	1.45	1.45	1.43
Social and behavioral sciences	0.88	0.93	0.94	0.97	1.01
Natural and computer sciences and engineering	0.34	0.35	0.35	0.34	0.34
Natural sciences	0.57	0.58	0.59	0.59	0.61
Life sciences	0.63	0.66	0.70	0.72	0.76
Physical sciences	0.28	0.29	0.30	0.31	0.32
Mathematics	0.82	0.83	0.79	0.76	0.76
Computer sciences and engineering	0.06	0.08	0.11	0.13	0.14
Computer and information sciences	0.30	0.37	0.39	0.42	0.45
Engineering	0.04	0.06	0.08	0.10	0.11
Technical/professional	1.22	1.21	1.23	1.24	1.25
Education	3.22	3.04	2.96	2.93	2.93
Business and other technical/professional	0.76	0.82	0.88	0.94	0.98
Business and management	0.30	0.36	0.42	0.47	0.53
Other technical/professional	1.54	1.56	1.65	1.74	1.79

Table 2:10-1 Female field concentration ratio at the bachelor's degree level, by field of study: Academic years ending 1971–1989—Continued

Field of study	1981	1982	1983	1984	1985	1986	1987	1988	1989
Humanities and social/behavioral sciences	1.19	1.20	1.19	1.19	1.19	1.18	1.17	1.15	1.15
Humanities	1.42	1.41	1.37	1.37	1.38	1.36	1.37	1.34	1.34
Social and behavioral sciences	1.02	1.03	1.03	1.03	1.02	1.02	1.01	1.00	1.00
Natural and computer sciences and engineering	0.34	0.35	0.35	0.36	0.37	0.37	0.37	0.36	0.35
Natural sciences	0.62	0.63	0.65	0.66	0.69	0.70	0.70	0.74	0.71
Life sciences	0.80	0.82	0.83	0.86	0.89	0.90	0.89	0.94	0.91
Physical sciences	0.33	0.34	0.37	0.37	0.38	0.37	0.37	0.40	0.38
Mathematics	0.75	0.75	0.76	0.78	0.83	0.84	0.82	0.80	0.77
Computer sciences and engineering	0.16	0.19	0.21	0.23	0.24	0.24	0.23	0.22	0.20
Computer and information sciences	0.49	0.53	0.56	0.58	0.56	0.54	0.50	0.44	0.40
Engineering	0.12	0.13	0.14	0.14	0.15	0.15	0.15	0.15	0.14
Technical/professional	1.27	1.28	1.31	1.34	1.35	1.36	1.35	1.33	1.31
Education	3.03	3.10	3.07	3.10	3.05	3.06	3.01	3.08	3.14
Business and other technical/professional	1.02	1.05	1.10	1.13	1.16	1.17	1.17	1.14	1.10
Business and management	0.59	0.64	0.71	0.76	0.80	0.82	0.82	0.81	0.79
Other technical/professional	1.86	1.88	1.91	1.92	1.91	1.93	1.93	1.86	1.77

NOTE: The female field concentration ratio is calculated as the percent of women earning bachelor's degrees who major in a selected field divided by the percent of men earning bachelor's degrees who major in the same field.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Indicator 2:10

Table 2:10–2 Percentage distribution of bachelor's degrees conferred, by sex and field of study: Academic years ending 1971–1989

Sex and field of study	1971	1972	1973	1974	1975
Women					
Number	364,136	386,683	404,171	418,463	418,092
Total percent	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	43.4	42.2	41.1	40.3	39.2
Humanities	23.0	22.2	21.6	21.0	20.7
Social and behavioral sciences	20.3	19.9	19.5	19.3	18.5
Natural and computer sciences and engineering	6.5	6.3	6.5	6.9	7.3
Natural sciences	6.3	6.0	6.2	6.6	6.8
Life sciences	2.9	2.8	3.1	3.6	4.1
Physical sciences	0.8	0.8	0.8	0.8	0.9
Mathematics	2.6	2.4	2.3	2.1	1.8
Computer sciences and engineering	0.2	0.3	0.3	0.4	0.5
Computer and information sciences	0.1	0.1	0.2	0.2	0.2
Engineering	0.1	0.1	0.2	0.2	0.2
Technical/professional	50.2	51.6	52.4	52.7	53.5
Education	36.1	36.6	35.3	32.5	29.3
Business and other technical/professional	14.1	14.9	17.1	20.2	24.2
Business and management	2.9	3.0	3.3	4.0	5.2
Other technical/professional	11.2	11.9	13.7	16.2	19.1
Men					
Number	475,594	500,590	518,191	527,313	504,841
Total percent	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	37.6	37.4	36.8	35.9	34.6
Humanities	12.5	12.6	12.7	12.9	13.0
Social and behavioral sciences	25.0	24.8	24.1	23.0	21.6
Natural sciences and engineering	23.3	22.4	22.3	22.2	22.2
Natural sciences	12.4	11.7	11.8	12.1	12.3
Life sciences	5.3	5.3	5.7	6.3	6.9
Physical sciences	3.9	3.5	3.4	3.4	3.4
Mathematics	3.2	2.9	2.7	2.4	2.1
Computer sciences and engineering	10.9	10.7	10.5	10.1	9.9
Computer and information sciences	0.4	0.6	0.7	0.8	0.8
Engineering	10.4	10.1	9.8	9.4	9.1
Technical/professional	39.1	40.2	41.0	41.9	43.2
Education	9.5	9.9	9.9	9.3	8.8
Business and other technical/professional	29.6	30.3	31.0	32.6	34.3
Business and management	22.0	21.9	21.8	21.8	22.1
Other technical/professional	7.7	8.4	9.2	10.8	12.3
Index of dissimilarity*	40.7	39.9	38.8	36.7	35.0

Table 2:10-2 Percentage distribution of bachelor's degrees conferred, by sex and field of study: Academic years ending 1971–1989—Continued

Sex and field of study	1976	1977	1978	1979	1980
Women					
Number	420,821	424,004	433,857	444,046	455,806
Total percent	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	37.9	36.5	35.1	33.8	33.0
Humanities	20.1	19.4	18.6	17.8	17.3
Social and behavioral sciences	17.8	17.1	16.6	16.0	15.7
Natural and computer sciences and engineering	7.6	7.9	8.2	8.4	8.7
Natural sciences	7.0	7.0	6.9	6.7	6.6
Life sciences	4.5	4.6	4.6	4.4	4.3
Physical sciences	1.0	1.1	1.1	1.2	1.2
Mathematics	1.5	1.4	1.2	1.1	1.1
Computer sciences and engineering	0.6	0.9	1.3	1.7	2.1
Computer and information sciences	0.3	0.4	0.4	0.6	0.7
Engineering	0.3	0.5	0.9	1.2	1.4
Technical/professional	54.6	55.6	56.7	57.7	58.3
Education	26.8	24.5	22.7	20.8	19.1
Business and other technical/professional	27.8	31.1	34.0	36.9	39.1
Business and management	6.7	8.4	10.1	11.8	13.7
Other technical/professional	21.1	22.7	23.9	25.1	25.4
Men					
Number	504,925	495,545	487,347	477,344	473,611
Total percent	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	33.2	31.4	30.4	28.9	27.7
Humanities	13.1	12.9	12.8	12.3	12.1
Social and behavioral sciences	20.1	18.5	17.5	16.6	15.6
Natural sciences and engineering	22.1	22.7	23.5	24.6	25.7
Natural sciences	12.3	12.2	11.7	11.3	10.8
Life sciences	7.0	6.9	6.5	6.1	5.7
Physical sciences	3.4	3.6	3.7	3.8	3.8
Mathematics	1.9	1.7	1.5	1.4	1.4
Computer sciences and engineering	9.8	10.5	11.8	13.3	14.8
Computer and information sciences	0.9	1.0	1.1	1.3	1.6
Engineering	8.9	9.5	10.7	12.0	13.2
Technical/professional	44.7	45.9	46.1	46.5	46.7
Education	8.3	8.1	7.7	7.1	6.5
Business and other technical/professional	36.4	37.8	38.4	39.4	40.1
Business and management	22.6	23.3	23.9	25.0	25.9
Other technical/professional	13.7	14.5	14.5	14.4	14.2
Index of dissimilarity*	32.8	31.1	30.2	29.9	29.2

Table 2:10-2 Percentage distribution of bachelor's degrees conferred, by sex and field of study: Academic years ending 1971–1989—Continued

Sex and field of study	1981	1982	1983	1984	1985
Women					
Number	465,257	479,634	490,370	491,990	496,949
Total percent	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	32.0	31.6	30.1	29.7	29.2
Humanities	16.8	16.6	15.9	15.8	15.6
Social and behavioral sciences	15.2	15.0	14.2	13.9	13.6
Natural and computer sciences and engineering	9.1	9.6	10.2	11.1	11.9
Natural sciences	6.4	6.3	6.2	6.2	6.4
Life sciences	4.1	3.9	3.8	3.7	3.7
Physical sciences	1.3	1.3	1.3	1.3	1.3
Mathematics	1.0	1.0	1.1	1.2	1.4
Computer sciences and engineering	2.7	3.4	4.0	4.9	5.4
Computer and information sciences	1.1	1.5	1.8	2.4	2.9
Engineering	1.7	1.9	2.2	2.5	2.5
Technical/professional	58.9	58.8	59.7	59.2	59.0
Education	17.5	16.0	15.2	14.3	13.5
Business and other technical/professional	41.4	42.8	44.6	45.0	45.5
Business and management	15.8	17.6	19.4	20.4	21.2
Other technical/professional	25.6	25.2	25.2	24.6	24.3
Men					
Number	469,883	473,364	479,140	482,319	482,528
Total percent	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	26.8	26.3	25.3	25.1	24.6
Humanities	11.9	11.8	11.6	11.6	11.3
Social and behavioral sciences	15.0	14.5	13.7	13.5	13.2
Natural sciences and engineering	26.8	27.7	29.1	30.6	31.8
Natural sciences	10.3	10.0	9.5	9.3	9.4
Life sciences	5.1	4.8	4.5	4.3	4.2
Physical sciences	3.8	3.8	3.6	3.6	3.5
Mathematics	1.3	1.4	1.5	1.5	1.7
Computer sciences and engineering	16.5	17.8	19.6	21.3	22.4
Computer and information sciences	2.2	2.8	3.3	4.2	5.1
Engineering	14.3	15.0	16.3	17.1	17.3
Technical/professional	46.3	45.9	45.6	44.3	43.7
Education	5.8	5.2	4.9	4.6	4.4
Business and other technical/professional	40.6	40.8	40.6	39.7	39.2
Business and management	26.8	27.4	27.5	26.9	26.5
Other technical/professional	13.8	13.4	13.1	12.8	12.7
Index of dissimilarity*	28.7	27.9	27.0	26.1	25.3

Table 2:10-2 Percentage distribution of bachelor's degrees conferred, by sex and field of study: Academic years ending 1971–1989—Continued

Sex and field of study	1986	1987	1988	1989
Women				
Number	501,900	510,485	516,520	534,570
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	29.2	29.9	30.7	32.1
Humanities	15.4	15.8	16.1	16.7
Social and behavioral sciences	13.7	14.1	14.6	15.4
Natural and computer sciences and engineering	11.9	11.4	10.6	9.6
Natural sciences	6.4	6.2	6.1	5.7
Life sciences	3.7	3.6	3.6	3.4
Physical sciences	1.2	1.1	1.0	1.0
Mathematics	1.5	1.5	1.4	1.3
Computer sciences and engineering	5.5	5.2	4.5	3.9
Computer and information sciences	3.0	2.7	2.2	1.8
Engineering	2.5	2.5	2.4	2.2
Technical/professional	59.0	58.7	58.6	58.2
Education	13.2	13.0	13.6	14.1
Business and other technical/professional	45.8	45.7	45.0	44.1
Business and management	21.7	22.0	22.0	21.6
Other technical/professional	24.1	23.7	23.0	22.5
Men				
Number	485,923	480,854	476,842	483,097
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	24.7	25.5	26.6	27.8
Humanities	11.3	11.6	12.0	12.4
Social and behavioral sciences	13.4	14.0	14.6	15.3
Natural sciences and engineering	31.9	31.0	29.2	27.6
Natural sciences	9.2	8.9	8.2	7.9
Life sciences	4.1	4.1	3.8	3.7
Physical sciences	3.2	3.0	2.6	2.5
Mathematics	1.8	1.8	1.8	1.7
Computer sciences and engineering	22.7	22.1	21.0	19.6
Computer and information sciences	5.5	5.4	4.9	4.4
Engineering	17.2	16.7	16.1	15.2
Technical/professional	43.4	43.5	44.0	44.4
Education	4.3	4.3	4.4	4.5
Business and other technical/professional	39.1	39.1	39.6	39.9
Business and management	26.6	26.8	27.2	27.2
Other technical/professional	12.5	12.3	12.4	12.7
Index of dissimilarity*	24.9	24.4	23.9	23.7

*The index of dissimilarity is calculated as: the sum of the absolute differences between the proportion of men and women majoring in each of the fields divided by 2. It is calculated here from the 10 most detailed categories shown above. The index represents the percentage of a group who would have to change occupations in order for the group to have the identical occupation distribution of a comparison group.

NOTE: Detail may not add to totals due to rounding. Totals for 1988 and 1989 include those for whom field of study is unknown.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:10-3 Percent of bachelor's degrees earned by women, by field of study: Academic years ending 1971–1989

Field of study	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Total	43.4	43.6	43.8	44.2	45.3	45.5	46.1	47.1	48.2	49.0
Humanities and social/behavioral sciences	46.9	46.5	46.6	47.2	48.4	48.7	49.9	50.7	52.1	53.4
Humanities	58.4	57.6	57.0	56.5	56.8	56.1	56.2	56.3	57.4	57.9
Social and behavioral sciences	38.3	38.3	38.8	40.0	41.4	42.4	44.3	45.7	47.3	49.2
Natural and computer sciences and engineering	17.5	17.8	18.5	19.8	21.4	22.2	23.0	23.6	24.1	24.6
Natural sciences	27.8	28.5	29.0	30.1	31.4	32.0	33.0	34.3	35.5	36.8
Life sciences	29.1	29.4	29.8	31.2	33.1	34.6	36.2	38.4	40.2	42.1
Physical sciences	13.8	14.9	14.8	16.5	18.2	19.2	20.0	21.3	22.5	23.7
Mathematics	38.0	39.0	40.2	40.9	41.8	40.7	41.5	41.1	41.6	42.3
Computer sciences and engineering	1.4	1.8	2.3	2.9	3.8	5.0	6.7	8.8	10.7	12.2
Computer and information sciences	13.6	13.6	14.9	16.4	18.9	19.8	23.9	25.7	28.1	30.2
Engineering	0.8	1.0	1.2	1.6	2.2	3.2	4.5	6.7	8.3	9.3
Technical/professional	49.6	49.8	49.9	50.0	50.7	50.4	50.9	52.3	53.6	54.6
Education	74.5	74.1	73.5	73.5	73.3	72.8	72.2	72.5	73.2	73.8
Business and other technical/professional	26.7	27.5	30.0	33.0	36.9	38.9	41.3	44.0	46.6	48.4
Business and management	9.1	9.5	10.6	12.8	16.2	19.7	23.5	27.2	30.6	33.7
Other technical/professional	52.8	52.3	53.7	54.3	56.3	56.1	57.2	59.5	61.9	63.3

Table 2:10-3 Percent of bachelor's degrees earned by women, by field of study: Academic years ending 1971–1989—Continued

Field of study	1981	1982	1983	1984	1985
Total	49.8	50.3	50.6	50.5	50.7
Humanities and social/behavioral sciences	54.2	54.9	54.9	54.7	55.0
Humanities	58.4	58.8	58.4	58.2	58.7
Social and behavioral sciences	50.2	51.1	51.4	51.2	51.3
Natural and computer sciences and engineering	25.1	26.0	26.4	27.0	27.8
Natural sciences	37.9	38.9	39.9	40.3	41.4
Life sciences	44.1	45.4	46.1	46.8	47.8
Physical sciences	24.6	25.7	27.3	27.6	28.0
Mathematics	42.8	43.2	43.8	44.2	46.1
Computer sciences and engineering	14.0	16.1	17.5	19.0	20.0
Computer and information sciences	32.5	34.8	36.3	37.1	36.8
Engineering	10.3	11.4	12.3	12.8	13.2
Technical/professional	55.7	56.4	57.3	57.7	58.2
Education	75.0	75.9	75.8	76.0	75.9
Business and other technical/professional	50.3	51.5	52.9	53.6	54.4
Business and management	36.9	39.4	41.9	43.5	45.1
Other technical/professional	64.8	65.6	66.2	66.2	66.3

Field of study	1986	1987	1988	1989
Total	50.8	51.5	52.0	52.5
Humanities and social/behavioral sciences	54.9	55.4	55.6	56.1
Humanities	58.5	59.2	59.3	59.8
Social and behavioral sciences	51.4	51.7	52.0	52.6
Natural and computer sciences and engineering	27.8	28.1	28.2	27.8
Natural sciences	41.9	42.6	44.4	44.1
Life sciences	48.1	48.5	50.3	50.2
Physical sciences	27.4	28.4	30.4	29.7
Mathematics	46.5	46.4	46.4	46.0
Computer sciences and engineering	20.0	19.9	19.0	18.2
Computer and information sciences	35.7	34.6	32.4	30.7
Engineering	13.1	13.7	13.7	13.6
Technical/professional	58.4	58.9	59.1	59.2
Education	75.9	76.2	76.9	77.7
Business and other technical/professional	54.7	55.4	55.2	55.0
Business and management	45.7	46.5	46.7	46.7
Other technical/professional	66.5	67.2	66.9	66.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Indicator 2:11

Table 2:11-1 Percent change since 1977 in number of degrees earned and in number of high school and college graduates, by race: Selected years 1979–1989

Race, degrees, and high school and college graduates	1979	1981	1985	1987	1989
White					
Number of degrees:					
Bachelor's	-0.7	0.3	2.6	4.5	6.6
Advanced degrees	-3.7	-5.3	-11.3	-9.8	-6.5
Master's	-6.1	-9.0	-15.7	-13.7	-8.9
First-professional*	6.9	10.5	8.2	7.3	4.7
Doctor's	-2.6	-3.5	-10.8	-8.9	-7.2
High school graduates aged 20–24	3.5	6.1	2.8	-1.8	-8.3
College graduates aged 25–34	4.6	12.4	22.2	28.1	29.7
Black					
Number of degrees:					
Bachelor's	2.8	3.7	-1.8	-3.3	-0.9
Advanced degrees	-5.3	-14.0	-27.0	-26.1	-26.5
Master's	-7.8	-18.5	-33.7	-34.0	-33.0
First-professional*	11.8	15.5	19.4	34.8	22.2
Doctor's	1.1	1.0	-7.9	-15.4	-14.5
High school graduates aged 20–24	4.1	15.8	22.6	18.2	15.9
College graduates aged 25–34	19.8	29.0	73.3	64.5	84.5

*The National Center for Education Statistics recognizes 10 first-professional degree fields: chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

NOTE: Degree data are for whites and blacks of non-Hispanic origin, whereas estimates of high school and college graduates are for all whites and blacks. High school graduates are defined as those who have completed 12 or more years of schooling and college graduates as those who have completed 16 or more years. Data for 1983 are not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, HEGIS/IPEDS surveys of degrees conferred, various years. U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March...," various years and unpublished tabulations.

Table 2:11-2 Number of degrees conferred, by race/ethnicity and degree level: Selected academic years ending 1977–1989

Race/ethnicity	1977	1979	1981	1985	1987	1989
				Bachelor's degrees		
White, non-Hispanic	805,186	799,617	807,319	826,106	841,820	858,186
Black, non-Hispanic	58,515	60,130	60,673	57,473	56,555	58,016
Hispanic	18,663	20,029	21,832	25,874	26,990	29,800
Asian or Pacific Islander	13,745	15,336	18,794	25,395	32,618	38,219
American Indian/Alaskan Native	3,319	3,404	3,593	4,246	3,971	4,046
				Master's degrees		
White, non-Hispanic	265,147	249,051	241,216	223,628	228,870	241,607
Black, non-Hispanic	21,024	19,393	17,133	13,939	13,867	14,076
Hispanic	6,069	5,544	6,461	6,864	7,044	7,270
Asian or Pacific Islander	5,115	5,495	6,282	7,782	8,558	10,714
American Indian/Alaskan Native	967	999	1,034	1,256	1,104	1,133
				Doctor's degrees		
White, non-Hispanic	26,836	26,128	25,908	23,934	24,435	24,895
Black, non-Hispanic	1,253	1,267	1,265	1,154	1,060	1,071
Hispanic	522	439	456	677	750	625
Asian or Pacific Islander	658	811	877	1,106	1,097	1,337
American Indian/Alaskan Native	95	104	130	119	104	84
				First-professional degrees*		
White, non-Hispanic	58,422	62,430	64,551	63,219	62,688	61,188
Black, non-Hispanic	2,537	2,836	2,931	3,029	3,420	3,101
Hispanic	1,076	1,283	1,541	1,884	2,051	2,254
Asian or Pacific Islander	1,021	1,205	1,456	1,816	2,270	2,967
American Indian/Alaskan Native	196	216	192	248	304	268

*See table 2:11-1 for definition.

NOTE: Degrees earned by nonresident aliens are not included. The total number of degrees reported in this table is lower than the total actually conferred because of missing racial/ethnic data. The numbers reported for 1977 and 1979 do not include degrees conferred by U.S. Service Schools (0.4 percent or less of total degrees). Data for 1983 are not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:11-3 Number of degrees conferred, by sex, degree level, and race/ethnicity: Academic years ending 1977 and 1989

Degree level and race/ethnicity	Number of degrees: Men 1977	Number of degrees: Men 1989	Number of degrees: Women 1977	Number of degrees: Women 1989	Percent change in number of degrees: 1977–1989: Men	Percent change in number of degrees: 1977–1989: Women
Bachelor's degrees						
White, non-Hispanic	435,659	406,656	369,527	451,530	-6.7	22.2
Black, non-Hispanic	25,026	22,365	33,489	35,651	-10.6	6.5
Hispanic	10,238	13,920	8,425	15,880	36.0	88.5
Asian or Pacific Islander	7,590	19,537	6,155	18,682	157.4	203.5
American Indian/Alaskan Native	1,797	1,768	1,522	2,278	-1.6	49.7
Master's degrees						
White, non-Hispanic	138,303	109,184	126,844	132,423	-21.1	4.4
Black, non-Hispanic	7,769	5,200	13,255	8,876	-33.1	-33.0
Hispanic	3,266	3,360	2,803	3,910	2.9	39.5
Asian or Pacific Islander	3,116	6,247	1,999	4,467	100.5	123.5
American Indian/Alaskan Native	521	500	446	633	-4.0	41.9
Doctor's degrees						
White, non-Hispanic	20,017	14,568	6,819	10,327	-27.2	51.4
Black, non-Hispanic	766	497	487	574	-35.1	17.9
Hispanic	383	352	139	273	-8.1	96.4
Asian or Pacific Islander	540	954	118	383	76.7	224.6
American Indian/Alaskan Native	67	49	28	35	-26.9	25.0
First-professional degrees[*]						
White, non-Hispanic	47,777	39,448	10,645	21,740	-17.4	104.2
Black, non-Hispanic	1,761	1,608	776	1,493	-8.7	92.4
Hispanic	893	1,367	183	887	53.1	384.7
Asian or Pacific Islander	776	1,811	245	1,156	133.4	371.8
American Indian/Alaskan Native	159	149	37	119	-6.3	221.6

[*] See table 2:11-1 for definition.

NOTE: Data for nonresident aliens are not shown. Data for 1977 exclude degrees conferred by U.S. Service Schools (0.4 percent or less of degrees conferred).

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:11-4 Standard errors for selected estimated percentages in table 2:11-1

Race and high school and college graduates	1979	1981	1985	1987	1989
White					
High school graduates aged 20–24	.7	.7	.7	.7	.6
College graduates aged 25–34	2.1	2.3	2.5	2.6	2.6
Black					
High school graduates aged 20–24	2.6	2.9	2.9	2.9	2.8
College graduates aged 25–34	11.6	12.7	16.0	15.4	16.8

NOTE: High school graduates are defined as those who have completed 12 or more years of schooling and college graduates are defined as those who have completed 16 or more years.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March...," various years and unpublished tabulations.

Table 2:12-1 Number of degrees conferred, by degree level and sex: Academic years ending 1971–1989

Academic year ending	Associate degrees		Bachelor's degrees		Master's degrees		Doctor's degrees		First-professional degrees	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1971	144,395	108,215	475,594	364,136	138,146	92,363	27,530	4,577	35,544	2,402
1972	166,317	125,802	500,590	386,683	149,550	102,083	28,090	5,273	40,723	2,688
1973	175,413	140,761	518,191	404,171	154,468	108,903	28,571	6,206	46,489	3,529
1974	188,591	155,333	527,313	418,463	157,842	119,191	27,365	6,451	48,530	5,286
1975	191,017	169,154	504,841	418,092	161,570	130,880	26,817	7,266	48,956	6,960
1976	209,996	181,458	504,925	420,821	167,248	144,523	26,267	7,797	52,892	9,757
1977	210,842	195,535	495,545	424,004	167,783	149,381	25,142	8,090	52,374	11,985
1978	204,718	207,528	487,347	433,857	161,212	150,408	23,658	8,473	52,270	14,311
1979	192,091	210,611	477,344	444,046	153,370	147,709	23,541	9,189	52,652	16,196
1980	183,737	217,173	473,611	455,806	150,749	147,332	22,943	9,672	52,716	17,415
1981	188,638	227,739	469,883	465,257	147,043	148,696	22,711	10,247	52,792	19,164
1982	196,939	237,576	473,364	479,634	145,532	150,014	22,224	10,483	52,223	19,809
1983	207,141	249,300	479,140	490,370	144,697	145,224	21,902	10,873	51,310	21,826
1984	202,762	249,654	482,319	491,990	143,595	140,668	22,064	11,145	51,334	23,073
1985	202,932	251,780	482,528	496,949	143,390	142,861	21,700	11,243	50,455	24,608
1986	196,166	249,881	485,923	501,900	143,508	145,059	21,819	11,834	49,261	24,649
1987	191,525	245,612	480,854	510,485	141,363	148,194	22,099	12,021	47,460	25,290
1988	190,189	245,348	476,842	516,520	144,923	153,810	22,592	12,247	45,288	25,127
1989	185,406	249,804	483,097	534,570	148,982	160,780	22,705	13,054	45,067	25,691

NOTE: The National Center for Education Statistics recognizes 10 first-professional degree fields: chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:12-2 Percent of degrees earned by women, by degree level: Academic years ending 1971–1989

Academic year ending	Associate degrees	Bachelor's degrees	Master's degrees	Doctor's degrees	First-professional degrees
1971	42.8	43.4	40.1	14.3	6.3
1972	43.1	43.6	40.6	15.8	6.2
1973	44.5	43.8	41.3	17.8	7.1
1974	45.2	44.2	43.0	19.1	9.8
1975	47.0	45.3	44.8	21.3	12.4
1976	46.4	45.5	46.4	22.9	15.6
1977	48.1	46.1	47.1	24.3	18.6
1978	50.3	47.1	48.3	26.4	21.5
1979	52.3	48.2	49.1	28.1	23.5
1980	54.2	49.0	49.4	29.7	24.8
1981	54.7	49.8	50.3	31.1	26.6
1982	54.7	50.3	50.8	32.1	27.5
1983	54.6	50.6	50.1	33.2	29.8
1984	55.2	50.5	49.5	33.6	31.0
1985	55.4	50.7	49.9	34.1	32.8
1986	56.0	50.8	50.3	35.2	33.4
1987	56.2	51.5	51.2	35.2	34.8
1988	56.3	52.0	51.5	35.2	35.7
1989	57.4	52.5	51.9	36.5	36.3

NOTE: The National Center for Education Statistics recognizes 10 first-professional degree fields: chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:12-3 Percent change in number of degrees conferred since 1971, by degree level and sex: Academic years ending 1972–1989

Academic year ending	Associate degrees		Bachelor's degrees		Master's degrees		Doctor's degrees		First-professional degrees	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1972	15.2	16.3	5.3	6.2	8.3	10.5	2.0	15.2	14.6	11.9
1973	21.5	30.1	9.0	11.0	11.8	17.9	3.8	35.6	30.8	46.9
1974	30.6	43.5	10.9	14.9	14.3	29.0	-0.6	40.9	36.5	120.1
1975	32.3	56.3	6.1	14.8	17.0	41.7	-2.6	58.8	37.7	189.8
1976	45.4	67.7	6.2	15.6	21.1	56.5	-4.6	70.4	48.8	306.2
1977	46.0	80.7	4.2	16.4	21.5	61.7	-8.7	76.8	47.3	399.0
1978	41.8	91.8	2.5	19.1	16.7	62.8	-14.1	85.1	47.1	495.8
1979	33.0	94.6	0.4	21.9	11.0	59.9	-14.5	100.8	48.1	574.3
1980	27.2	100.7	-0.4	25.2	9.1	59.5	-16.7	111.3	48.3	625.0
1981	30.6	110.5	-1.2	27.8	6.4	61.0	-17.5	123.9	48.5	697.8
1982	36.4	119.5	-0.5	31.7	5.3	62.4	-19.3	129.0	46.9	724.7
1983	43.5	130.4	0.7	34.7	4.7	57.2	-20.4	137.6	44.4	808.7
1984	40.4	130.7	1.4	35.1	3.9	52.3	-19.9	143.5	44.4	860.6
1985	40.5	132.7	1.5	36.5	3.8	54.7	-21.2	145.6	42.0	924.5
1986	35.9	130.9	2.2	37.8	3.9	57.1	-20.7	158.6	38.6	926.2
1987	32.6	127.0	1.1	40.2	2.3	60.4	-19.7	162.6	33.5	952.9
1988	31.7	126.7	0.3	41.8	4.9	66.5	-17.9	167.6	27.4	946.1
1989	28.4	130.8	1.6	46.8	7.8	74.1	-17.5	185.2	26.8	969.6

NOTE: The National Center for Education Statistics recognizes 10 first-professional degree fields: chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Indicator 2:13

Table 2:13-1 Scores on the Graduate Record Examinations (GRE) and the ratio of the number of GRE test-takers to the number of baccalaureate degrees awarded: Academic years ending 1965–1989

		Test-takers		GRE Scores				
					Verbal		Quantitative	
Year	Number of BAs	Number	Percent of BAs[1]	Total	Mean	Std[2]	Mean	Std[2]
1965	501,713	93,792	18.7	1,063	530	124	533	137
1966	520,923	123,960	23.8	1,048	520	124	528	133
1967	558,852	151,134	27.0	1,047	519	125	528	134
1968	632,758	182,432	28.8	1,047	520	124	527	135
1969	729,071	206,113	28.3	1,039	515	124	524	132
1970	792,656	265,359	33.5	1,019	503	123	516	132
1971	839,730	293,600	35.0	1,009	497	125	512	134
1972	887,273	293,506	33.1	1,002	494	126	508	136
1973	922,362	290,104	31.5	1,009	497	125	512	135
1974	945,776	301,070	31.8	1,001	492	126	509	137
1975	922,933	298,335	32.3	1,001	493	125	508	137
1976	925,746	299,292	32.3	1,002	492	127	510	138
1977	919,549	287,715	31.3	1,004	490	129	514	139
1978	921,204	286,383	31.1	1,002	484	128	518	135
1979	921,390	282,482	30.7	993	476	130	517	135
1980	929,417	272,281	29.3	996	474	131	522	136
1981	935,140	262,855	28.1	996	473	128	523	136
1982	952,998	256,381	26.9	1,002	469	130	533	137
1983	969,510	263,674	27.2	1,014	473	131	541	138
1984	974,309	265,221	27.2	1,016	475	130	541	139
1985	979,477	271,972	27.8	1,019	474	126	545	140
1986	987,823	279,428	28.3	1,027	475	126	552	140
1987	991,339	293,560	29.6	1,027	477	126	550	140
1988	993,362	303,703	30.6	1,040	483	123	557	140
1989	1,016,728	326,096	32.1	1,044	484	125	560	142

[1] Ratio of the number of GRE test-takers to the number of baccalaureate degrees awarded expressed as a percent.

[2] Standard deviation of scores.

SOURCE: Educational Testing Service; U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, Table 220.

Table 2:13-2 Characteristics of Graduate Record Examination (GRE) test-takers: Academic years ending 1976–1989

Year	Not a U.S. citizen	English not preferred language
	Percent	
1976	7.5	6.0
1977	8.7	6.0
1978	8.9	6.0
1979	10.0	8.0
1970	10.7	8.0
1981	13.2	9.0
1982	13.3	10.2
1983	13.9	10.8
1984	14.1	11.4
1985	15.1	11.8
1986	15.5	12.4
1987	15.8	12.7

SOURCE: Graduate Record Examination Board, *A Summary of Data Collected From Graduate Record Examinations Test-Takers During 1986–1987: Data Summary Report #12*, June 1988 and earlier editions.

Table 2:13-3 Graduate Record Examination (GRE) scores for U.S. citizens only: Academic years ending 1973–1988

Year	Total (Mean)	Verbal			Quantitative		
		Mean	Std*	Percent > 500	Mean	Std*	Percent > 500
1973	1010	500	—	—	510	—	—
1974	1003	498	—	—	505	—	—
1975	1004	497	—	—	507	—	—
1976	1005	498	—	—	507	—	—
1977	1004	495	—	—	509	—	—
1978	1003	491	—	—	512	—	—
1979	1011	499	118	49.7	512	130	53.8
1980	1013	500	117	50.1	513	129	54.7
1981	1015	499	115	50.8	516	130	55.8
1982	1019	498	115	49.4	521	132	58.8
1983	1031	503	117	50.9	529	133	59.7
1984	1032	504	116	50.7	528	134	58.4
1985	1029	502	114	49.9	527	134	58.6
1986	1038	506	113	52.0	532	134	60.2
1987	1036	505	115	51.5	531	134	59.5
1988	1045	508	114	—	537	135	—

— Not available.

* Standard deviation of scores.

SOURCE: Graduate Record Examination Board, *Examinee and Score Trends for the GRE General Test: 1977-78, 1982-83, 1986-87, and 1987-88* and *A Summary of Data Collected From Graduate Record Examinations Test-Takers During 1986–1987: Data Summary Report #12*, June 1988 and earlier editions.

Indicator 2:14

Table 2:14-1 Percent of baccalaureate degree recipients employed full time or enrolled in school 1 year after graduation, by sex and race/ethnicity: Years of graduation 1977, 1980, 1984, and 1986

Sex and race/ethnicity	Employed full time				Enrolled in college*			
	1977	1980	1984	1986	1977	1980	1984	1986
Total	68.0	71.1	72.7	73.7	17.3	15.9	14.8	11.4
Male	70.2	72.9	74.9	74.7	19.5	17.5	16.3	13.1
Female	65.4	69.3	70.6	72.8	14.6	14.2	13.4	9.8
White, non-Hispanic	68.7	71.7	73.3	74.6	16.8	15.7	14.6	11.2
Black, non-Hispanic	65.4	69.8	67.2	66.2	16.4	8.8	14.3	8.6
Hispanic	61.6	59.7	72.3	68.3	26.7	25.8	16.4	13.5
Asian	55.7	53.0	65.8	63.0	30.7	33.9	20.9	18.6
American Indian	—	—	70.1	71.8	—	—	13.6	14.5
Other	—	—	—	73.0	—	—	—	12.9

— Too few cases for a reliable estimate.

* Enrolled in school and not working full time.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Indicator 2:14

Table 2:14-2 Standard errors for estimated percentages in text table for *Indicator 2:14* and table 2:14-1

Major field of study, sex, and race/ethnicity	Employed full time				Enrolled in college*			
	1977	1980	1984	1986	1977	1980	1984	1986
All fields	0.9	0.8	0.7	0.5	0.8	0.7	0.6	0.4
Humanities and social/behavior sciences	1.7	1.9	1.4	1.2	1.4	1.6	1.1	0.9
Humanities	2.7	2.9	1.9	1.7	2.0	2.2	1.4	1.2
Social/behavior sciences	2.0	2.4	1.8	1.7	1.7	2.0	1.5	1.3
Natural and computer sciences and engineering	2.4	2.3	1.2	1.1	2.2	2.0	1.1	0.9
Natural sciences	2.8	3.0	2.1	1.7	2.6	2.8	2.0	1.6
Computer sciences and engineering	2.8	2.1	1.0	1.0	2.4	1.6	0.9	0.7
Technical/professional	0.9	0.7	0.7	0.5	0.7	0.5	0.6	0.3
Education	1.5	1.0	1.6	1.2	0.8	0.6	1.0	0.6
Business	1.4	1.3	0.9	0.8	1.0	1.0	0.6	0.4
Other technical/professional	2.0	2.0	1.7	1.0	1.7	1.6	1.3	0.7
Total	0.9	0.8	0.7	0.5	0.8	0.7	0.6	0.4
Male	1.9	1.8	1.4	1.2	1.0	0.9	0.7	0.6
Female	2.0	1.6	1.5	1.1	1.1	0.9	0.8	0.5
White, non-Hispanic	1.0	0.8	0.7	0.6	0.8	0.7	0.6	0.4
Black, non-Hispanic	4.0	4.1	3.2	3.5	2.2	1.8	1.7	1.5
Hispanic	6.4	5.3	2.2	2.4	7.2	5.8	2.3	2.2
Asian	6.3	6.3	3.4	3.0	5.8	5.9	2.9	2.4
American Indian	—	—	8.6	4.7	—	—	6.7	3.8
Other	—	—	—	4.1	—	—	—	3.2

— Too few cases for a reliable estimate.

* Enrolled in school and not working full time.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Indicator 2:15

Table 2:15-1 Minority field concentration ratio at the master's degree level, by race/ethnicity and field of study: Selected academic years ending 1977–1989

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
Black concentration ratio						
Humanities and social/behavioral sciences	0.69	0.64	0.67	0.69	0.69	0.69
Humanities	0.50	0.46	0.51	0.52	0.54	0.54
Social and behavioral sciences	0.95	0.91	0.90	0.93	0.92	0.92
Natural and computer sciences and engineering	0.35	0.35	0.39	0.49	0.57	0.53
Natural sciences	0.40	0.38	0.43	0.47	0.55	0.47
Life sciences	0.42	0.48	0.46	0.59	0.73	0.58
Physical sciences	0.27	0.25	0.37	0.34	0.34	0.36
Mathematics	0.55	0.39	0.50	0.45	0.59	0.49
Computer sciences and engineering	0.29	0.32	0.36	0.51	0.59	0.57
Computer and information sciences	0.39	0.37	0.35	0.67	0.73	0.71
Engineering	0.27	0.31	0.36	0.46	0.54	0.51
Technical/professional	1.17	1.17	1.16	1.15	1.15	1.15
Education	1.49	1.48	1.47	1.47	1.34	1.28
Business and other technical/professional	0.75	0.84	0.89	0.95	1.02	1.05
Business and management	0.52	0.66	0.70	0.76	0.87	0.92
Other technical/professional	0.95	1.01	1.07	1.18	1.20	1.22
Hispanic concentration ratio						
Humanities and social/behavioral sciences	1.28	1.08	0.99	1.09	0.98	1.14
Humanities	1.16	1.06	0.94	1.00	0.90	1.10
Social and behavioral sciences	1.45	1.12	1.06	1.22	1.09	1.21
Natural and computer sciences and engineering	0.75	0.66	0.78	0.84	1.03	0.97
Natural sciences	0.55	0.52	0.55	0.86	0.83	0.74
Life sciences	0.52	0.52	0.49	0.87	0.71	0.99
Physical sciences	0.56	0.53	0.50	0.84	0.93	0.65
Mathematics	0.60	0.50	0.79	0.85	0.85	0.45
Computer sciences and engineering	0.96	0.81	0.97	0.84	1.14	1.08
Computer and information sciences	0.94	0.48	0.79	0.71	0.85	0.95
Engineering	0.97	0.88	1.02	0.88	1.25	1.13
Technical/professional	0.97	1.03	1.03	1.01	1.00	0.98
Education	1.09	1.22	1.28	1.30	1.12	1.01
Business and other technical/professional	0.81	0.82	0.82	0.82	0.92	0.95
Business and management	0.64	0.66	0.68	0.70	0.87	0.91
Other technical/professional	0.96	0.96	0.96	0.97	0.97	0.99

NOTE: The minority field concentration ratio is calculated as the percent of a minority group earning degrees who majored in a specific field divided by the percent of whites earning degrees who majored in the same field. As measured here, blacks and whites are non-Hispanic.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:15-2 Percentage distribution of master's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
White, non-Hispanic						
Number of degrees	265,147	249,051	241,216	223,628	228,870	241,607
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	17.6	17.0	16.7	15.9	16.2	15.7
Humanities	10.2	10.1	10.0	9.4	9.9	9.5
Social and behavioral sciences	7.4	6.9	6.7	6.5	6.4	6.2
Natural and computer sciences and engineering	10.1	10.0	10.0	12.1	12.6	12.2
Natural sciences	5.1	5.1	4.6	4.5	4.4	4.1
Life sciences	2.3	2.4	2.2	1.8	1.7	1.6
Physical sciences	1.6	1.8	1.7	1.9	1.8	1.6
Mathematics	1.1	0.9	0.8	0.8	0.9	0.9
Computer sciences and engineering	5.0	4.9	5.4	7.6	8.2	8.1
Computer and information sciences	0.8	0.9	1.2	1.9	2.2	2.2
Engineering	4.2	4.0	4.2	5.6	6.0	5.9
Technical/professional	72.3	73.1	73.3	72.0	71.1	72.1
Education	40.4	37.7	34.3	28.3	28.2	29.3
Business and other technical/professional	31.9	35.3	39.0	43.7	42.9	42.8
Business and management	14.8	16.7	19.7	24.4	23.4	23.8
Other technical/professional	17.2	18.6	19.3	19.2	19.5	19.0
Black, non-Hispanic						
Number of degrees	21,024	19,393	17,133	13,939	13,867	14,076
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	12.1	10.9	11.1	11.0	11.2	10.9
Humanities	5.0	4.6	5.0	4.9	5.4	5.2
Social and behavioral sciences	7.0	6.3	6.1	6.1	5.9	5.8
Natural and computer sciences and engineering	3.5	3.5	3.9	6.0	7.3	6.5
Natural sciences	2.1	1.9	2.0	2.1	2.4	1.9
Life sciences	1.0	1.1	1.0	1.1	1.3	0.9
Physical sciences	0.4	0.4	0.6	0.6	0.6	0.6
Mathematics	0.6	0.4	0.4	0.4	0.5	0.4
Computer sciences and engineering	1.4	1.6	1.9	3.9	4.8	4.6
Computer and information sciences	0.3	0.3	0.4	1.3	1.6	1.5
Engineering	1.1	1.2	1.5	2.6	3.2	3.0
Technical/professional	84.4	85.5	84.9	83.0	81.5	82.6
Education	60.4	55.8	50.5	41.7	37.9	37.5
Business and other technical/professional	24.1	29.7	34.5	41.3	43.7	45.1
Business and management	7.7	11.0	13.8	18.7	20.3	21.9
Other technical/professional	16.3	18.7	20.7	22.7	23.4	23.3
Index of dissimilarity*	20.0	18.2	17.6	16.8	13.5	12.4

Table 2:15-2 Percentage distribution of master's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989—Continued

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
Hispanic						
Number of degrees	6,069	5,544	6,461	6,864	7,044	7,270
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	22.5	18.4	16.5	17.4	15.8	17.9
Humanities	11.8	10.7	9.4	9.5	8.9	10.4
Social and behavioral sciences	10.7	7.7	7.1	7.9	6.9	7.5
Natural and computer sciences and engineering	7.6	6.6	7.8	10.2	13.0	11.7
Natural sciences	2.8	2.6	2.5	3.9	3.6	3.0
Life sciences	1.2	1.2	1.1	1.6	1.2	1.6
Physical sciences	0.9	0.9	0.9	1.6	1.6	1.1
Mathematics	0.7	0.5	0.6	0.7	0.8	0.4
Computer sciences and engineering	4.8	4.0	5.2	6.3	9.4	8.7
Computer and information sciences	0.8	0.4	0.9	1.4	1.9	2.1
Engineering	4.0	3.5	4.3	5.0	7.5	6.6
Technical/professional	69.9	75.0	75.7	72.4	71.1	70.3
Education	43.9	46.1	43.8	36.7	31.7	29.7
Business and other technical/professional	25.9	28.9	31.9	35.7	39.4	40.7
Business and management	9.4	11.0	13.4	17.1	20.4	21.7
Other technical/professional	16.5	17.9	18.4	18.6	19.0	18.9
Index of dissimilarity*	8.5	9.8	10.0	9.9	5.6	3.3

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*The index of dissimilarity is calculated as: the sum of the absolute differences between the proportion of minority and white students majoring in each of the fields divided by 2. It was calculated here from the 10 most detailed categories shown above. It represents the percentage of one group who would have to change fields in order for the group to have the identical field distribution of the other.

NOTE: Distributions for 1985 and later years include degrees for which missing race/ethnicity could be imputed. The number of degrees reported for 1977 and 1979 exclude those conferred by U.S. Service Schools (0.4 percent or less of degrees).

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:15-3 Number of master's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
White, non-Hispanic						
Total degrees	265,147	249,051	241,216	223,628	228,870	241,607
Humanities and social/behavioral sciences	46,562	42,278	40,262	35,664	37,177	37,975
Humanities	27,004	25,087	24,096	21,113	22,643	22,877
Social and behavioral sciences	19,558	17,191	16,166	14,551	14,534	15,098
Natural and computer sciences and engineering	26,769	24,823	24,180	27,000	28,920	29,372
Natural sciences	13,544	12,586	11,215	10,097	10,119	9,876
Life sciences	6,181	5,861	5,210	4,079	3,944	3,791
Physical sciences	4,315	4,373	4,115	4,145	4,062	3,962
Mathematics	3,048	2,352	1,890	1,873	2,113	2,123
Computer sciences and engineering	13,225	12,237	12,965	16,903	18,801	19,496
Computer and information sciences	2,136	2,261	2,818	4,303	5,053	5,290
Engineering	11,089	9,976	10,147	12,600	13,748	14,206
Technical/professional	191,816	181,950	176,774	160,964	162,773	174,260
Education	107,127	93,968	82,779	63,302	64,492	70,827
Business and other technical/professional	84,689	87,982	93,995	97,662	98,281	103,433
Business and management	39,140	41,539	47,474	54,663	53,582	57,445
Other technical/professional	45,549	46,443	46,521	42,999	44,699	45,988
Black, non-Hispanic						
Total degrees	21,024	19,393	17,133	13,939	13,867	14,076
Humanities and social/behavioral sciences	2,535	2,123	1,904	1,534	1,558	1,537
Humanities	1,060	899	865	686	744	726
Social and behavioral sciences	1,475	1,224	1,039	848	814	811
Natural and computer sciences and engineering	735	680	675	833	1,006	913
Natural sciences	432	374	345	293	335	271
Life sciences	206	217	171	151	175	128
Physical sciences	93	86	107	89	84	82
Mathematics	133	71	67	53	76	61
Computer sciences and engineering	303	306	330	540	671	642
Computer and information sciences	66	65	70	180	222	218
Engineering	237	241	260	360	449	424
Technical/professional	17,754	16,590	14,554	11,572	11,303	11,626
Education	12,696	10,825	8,645	5,812	5,250	5,272
Business and other technical/professional	5,058	5,765	5,909	5,760	6,053	6,354
Business and management	1,621	2,129	2,359	2,601	2,810	3,077
Other technical/professional	3,437	3,636	3,550	3,159	3,243	3,277

Table 2:15-3 Number of master's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989—Continued

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
Hispanic						
Total degrees	6,069	5,544	6,461	6,864	7,044	7,270
Humanities and social/behavioral sciences	1,366	1,021	1,067	1,196	1,116	1,304
Humanities	717	594	608	651	628	756
Social and behavioral sciences	649	427	459	545	488	548
Natural and computer sciences and engineering	462	366	502	699	918	853
Natural sciences	171	146	164	265	257	219
Life sciences	74	68	69	109	86	113
Physical sciences	55	52	55	107	116	77
Mathematics	42	26	40	49	55	29
Computer sciences and engineering	291	220	338	434	661	634
Computer and information sciences	46	24	60	94	132	152
Engineering	245	196	278	340	529	482
Technical/professional	4,241	4,157	4,892	4,969	5,010	5,113
Education	2,667	2,555	2,831	2,519	2,232	2,157
Business and other technical/professional	1,574	1,602	2,061	2,450	2,778	2,956
Business and management	572	612	869	1,175	1,437	1,581
Other technical/professional	1,002	990	1,192	1,275	1,341	1,375

NOTE: Distributions for 1985 and later years include degrees for which missing race/ethnicity could be imputed. The number of degrees reported for 1977 and 1979 exclude those conferred by U.S. Service Schools (0.4 percent or less of degrees).

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:15-4 Minority field concentration ratio at the doctor's degree level, by race/ethnicity and field of study: Selected academic years ending 1977–1989

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
Black concentration ratio						
Humanities and social/behavioral sciences	0.76	0.85	0.82	0.88	0.83	0.95
Humanities	0.65	0.69	0.75	0.68	0.71	0.78
Social and behavioral sciences	0.86	0.99	0.87	1.03	0.93	1.08
Natural and computer sciences and engineering	0.36	0.37	0.35	0.41	0.38	0.39
Natural sciences	0.38	0.38	0.35	0.36	0.37	0.41
Life sciences	0.39	0.32	0.41	0.40	0.47	0.50
Physical sciences	0.37	0.41	0.27	0.30	0.25	0.31
Mathematics	0.35	0.52	0.36	0.39	0.59	0.45
Computer sciences and engineering	0.30	0.37	0.33	0.58	0.39	0.33
Computer and information sciences	0.13	0.47	0.11	0.41	0.21	0.16
Engineering	0.32	0.36	0.36	0.60	0.41	0.36
Technical/professional	1.82	1.69	1.72	1.59	1.68	1.58
Education	2.22	2.04	1.97	1.92	1.96	1.92
Business and other technical/professional	0.72	0.86	1.17	0.99	1.20	1.04
Business and management	0.42	0.56	1.06	0.49	0.97	0.62
Other technical/professional	0.84	0.96	1.20	1.11	1.27	1.16
Hispanic concentration ratio						
Humanities and social/behavioral sciences	1.05	1.20	1.16	1.01	0.95	1.15
Humanities	1.01	1.20	0.98	0.99	0.94	1.02
Social and behavioral sciences	1.08	1.21	1.30	1.03	0.95	1.25
Natural and computer sciences and engineering	0.73	0.64	0.68	1.12	0.90	0.80
Natural sciences	0.73	0.57	0.64	0.84	0.77	0.78
Life sciences	0.52	0.56	0.72	0.87	0.73	0.70
Physical sciences	0.76	0.57	0.53	0.63	0.80	0.88
Mathematics	1.52	0.69	0.67	2.09	0.84	0.68
Computer sciences and engineering	0.75	0.87	0.85	2.11	1.27	0.84
Computer and information sciences	0.00	0.34	0.00	0.47	0.89	0.56
Engineering	0.83	0.94	0.97	2.28	1.32	0.88
Technical/professional	1.18	1.08	1.11	0.89	1.14	1.04
Education	1.27	1.28	1.24	1.03	1.23	1.19
Business and other technical/professional	0.91	0.62	0.79	0.66	0.98	0.79
Business and management	0.54	0.45	0.18	0.24	0.47	0.75
Other technical/professional	1.05	0.68	0.96	0.76	1.12	0.81

NOTE: The minority field concentration ratio is calculated as the percent of a minority group earning degrees who majored in a specific field divided by the percent of whites earning degrees who majored in the same field. As measured here, blacks and whites are non-Hispanic.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:15-5 Percentage distribution of doctor's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
White, non-Hispanic						
Number of degrees	26,836	26,128	25,908	23,934	24,435	24,895
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	37.4	36.9	34.9	33.7	34.5	33.5
Humanities	16.7	17.5	15.2	14.8	15.0	14.4
Social and behavioral sciences	20.7	19.4	19.7	18.9	19.5	19.1
Natural and computer sciences and engineering	29.1	28.7	29.6	29.5	29.9	31.2
Natural sciences	22.7	22.7	23.7	23.1	22.2	22.2
Life sciences	10.6	11.4	12.3	11.4	10.7	10.8
Physical sciences	9.8	9.2	9.4	10.2	10.0	9.8
Mathematics	2.3	2.0	2.0	1.6	1.4	1.7
Computer sciences and engineering	6.4	6.0	5.9	6.4	7.8	9.0
Computer and information sciences	0.6	0.7	0.7	0.6	0.9	1.1
Engineering	5.8	5.3	5.2	5.8	6.9	7.8
Technical/professional	33.5	34.4	35.5	36.8	35.6	35.4
Education	24.7	24.2	24.7	23.5	22.5	21.9
Business and other technical/professional	8.9	10.2	10.8	13.4	13.1	13.5
Business and management	2.5	2.5	2.4	2.5	2.8	3.0
Other technical/professional	6.4	7.7	8.4	10.9	10.3	10.5
Black, non-Hispanic						
Number of degrees	1,253	1,267	1,265	1,154	1,060	1,071
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	28.5	31.2	28.5	29.6	28.8	31.8
Humanities	10.8	12.0	11.5	10.1	10.7	11.2
Social and behavioral sciences	17.7	19.2	17.1	19.5	18.1	20.6
Natural and computer sciences and engineering	10.5	10.7	10.3	12.0	11.3	12.1
Natural sciences	8.5	8.5	8.3	8.2	8.3	9.2
Life sciences	4.2	3.7	5.1	4.6	5.0	5.4
Physical sciences	3.6	3.8	2.5	3.0	2.5	3.0
Mathematics	0.8	1.0	0.7	0.6	0.8	0.7
Computer sciences and engineering	1.9	2.2	2.0	3.7	3.0	3.0
Computer and information sciences	0.1	0.3	0.1	0.3	0.2	0.2
Engineering	1.8	1.9	1.9	3.5	2.8	2.8
Technical/professional	61.1	58.1	61.2	58.4	59.9	56.0
Education	54.7	49.3	48.5	45.1	44.2	42.0
Business and other technical/professional	6.4	8.8	12.6	13.3	15.8	14.0
Business and management	1.0	1.4	2.5	1.2	2.7	1.9
Other technical/professional	5.3	7.3	10.1	12.0	13.0	12.1
Index of dissimilarity*	30.0	25.1	25.7	23.5	24.4	23.3

Table 2:15-5 Percentage distribution of doctor's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989—Continued

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
Hispanic						
Number of degrees	522	439	456	677	750	625
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	39.3	44.4	40.6	34.1	32.7	38.6
Humanities	16.9	21.0	14.9	14.8	14.1	14.7
Social and behavioral sciences	22.4	23.5	25.7	19.4	18.5	23.8
Natural and computer sciences and engineering	21.3	18.2	20.2	32.9	26.9	24.8
Natural sciences	16.5	13.0	15.1	19.5	17.1	17.3
Life sciences	5.6	6.4	8.8	9.9	7.9	7.5
Physical sciences	7.5	5.2	5.0	6.4	8.0	8.6
Mathematics	3.4	1.4	1.3	3.2	1.2	1.1
Computer sciences and engineering	4.8	5.2	5.0	13.4	9.9	7.5
Computer and information sciences	0.0	0.2	0.0	0.3	0.8	0.6
Engineering	4.8	5.0	5.0	13.1	9.1	6.9
Technical/professional	39.5	37.4	39.3	32.9	40.4	36.6
Education	31.4	31.0	30.7	24.1	27.6	25.9
Business and other technical/professional	8.0	6.4	8.6	8.9	12.8	10.7
Business and management	1.3	1.1	0.4	0.6	1.3	2.2
Other technical/professional	6.7	5.2	8.1	8.3	11.5	8.5
Index of dissimilarity*	10.1	14.3	12.0	10.2	8.5	9.1

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*The index of dissimilarity is calculated as: the sum of the absolute difference between the proportion of minority and white students majoring in each of the fields divided by 2. It was calculated here from the 10 most detailed categories shown above. It represents the percentage of one group who would have to change fields in order for the group to have the identical field distribution of the other.

NOTE: Distributions for 1985 and later years include degrees for which missing race/ethnicity could be imputed. The number of degrees reported for 1977 and 1979 exclude those conferred by U.S. Service Schools (0.4 percent or less of degrees).

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys off degrees conferred, various years.

Indicator 2:15

Table 2:15-6 Number of doctor's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
White, non-Hispanic						
Total degrees	26,836	26,128	25,908	23,934	24,435	24,895
Humanities and social/behavioral sciences	10,042	9,633	9,050	8,067	8,432	8,333
Humanities	4,481	4,575	3,948	3,554	3,656	3,583
Social and behavioral sciences	5,561	5,058	5,102	4,513	4,776	4,750
Natural and computer sciences and engineering	7,800	7,494	7,665	7,055	7,310	7,758
Natural sciences	6,087	5,926	6,129	5,528	5,414	5,526
Life sciences	2,855	2,991	3,177	2,725	2,624	2,677
Physical sciences	2,623	2,415	2,445	2,431	2,441	2,436
Mathematics	609	520	507	372	349	413
Computer sciences and engineering	1,713	1,568	1,536	1,527	1,896	2,232
Computer and information sciences	160	175	184	150	219	285
Engineering	1,553	1,393	1,352	1,377	1,677	1,947
Technical/professional	8,994	9,001	9,193	8,812	8,693	8,804
Education	6,616	6,333	6,391	5,615	5,495	5,445
Business and other technical/professional	2,378	2,668	2,802	3,197	3,198	3,359
Business and management	668	662	619	589	688	746
Other technical/professional	1,710	2,006	2,183	2,608	2,510	2,613
Black, non-Hispanic						
Total degrees	1,253	1,267	1,265	1,154	1,060	1,071
Humanities and social/behavioral sciences	357	395	361	342	305	341
Humanities	135	152	145	117	113	120
Social and behavioral sciences	222	243	216	225	192	221
Natural and computer sciences and engineering	131	136	130	138	120	130
Natural sciences	107	108	105	95	88	98
Life sciences	52	47	64	53	53	58
Physical sciences	45	48	32	35	26	32
Mathematics	10	13	9	7	9	8
Computer sciences and engineering	24	28	25	43	32	32
Computer and information sciences	1	4	1	3	2	2
Engineering	23	24	24	40	30	30
Technical/professional	765	736	774	674	635	600
Education	685	625	614	521	468	450
Business and other technical/professional	80	111	160	153	167	150
Business and management	13	18	32	14	29	20
Other technical/professional	67	93	128	139	138	130

Table 2:15-6 Number of doctor's degrees conferred, by race/ethnicity and field of study: Selected academic years ending 1977–1989—Continued

Race/ethnicity and field of study	1977	1979	1981	1985	1987	1989
Hispanic						
Total degrees	522	439	456	677	750	625
Humanities and social/behavioral sciences	205	195	185	231	245	241
Humanities	88	92	68	100	106	92
Social and behavioral sciences	117	103	117	131	139	149
Natural and computer sciences and engineering	111	80	92	223	202	155
Natural sciences	86	57	69	132	128	108
Life sciences	29	28	40	67	59	47
Physical sciences	39	23	23	43	60	54
Mathematics	18	6	6	22	9	7
Computer sciences and engineering	25	23	23	91	74	47
Computer and information sciences	0	1	0	2	6	4
Engineering	25	22	23	89	68	43
Technical/professional	206	164	179	223	303	229
Education	164	136	140	163	207	162
Business and other technical/professional	42	28	39	60	96	67
Business and management	7	5	2	4	10	14
Other technical/professional	35	23	37	56	86	53

NOTE: Distributions for 1985 and later years include degrees for which missing race/ethnicity could be imputed. The number of degrees reported for 1977 and 1979 exclude those conferred by U.S. Service Schools (0.4 percent or less of degrees).

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Indicator 2:16

Table 2:16-1 Median total time-to-doctorate-degree among U.S. citizens and permanent U.S. residents, by field of study: 1970–1989

(Median years)

Year	Total	Humanities	Social and behavioral sciences	Natural sciences	Computer sciences and engineering	Education	Other technical/ professional
1970	7.9	9.2	7.6	6.1	6.9	12.7	8.5
1971	8.0	9.3	7.4	6.3	7.3	12.8	8.5
1972	8.2	9.2	7.7	6.5	7.6	12.6	8.6
1973	8.5	9.3	7.9	6.8	8.0	12.5	8.8
1974	8.6	9.4	8.0	6.8	7.9	12.5	8.9
1975	8.7	9.6	8.0	6.7	7.9	12.6	9.3
1976	8.8	9.7	8.1	6.8	7.8	12.8	9.5
1977	8.8	10.0	8.2	6.9	7.6	12.7	9.4
1978	9.0	10.1	8.3	6.9	7.8	12.8	9.6
1979	9.1	10.4	8.7	6.7	7.6	12.9	9.6
1980	9.4	10.7	8.8	6.8	7.7	13.3	9.8
1981	9.6	10.7	9.1	6.8	8.1	13.7	9.9
1982	9.7	11.2	9.4	6.9	7.9	13.9	10.2
1983	10.0	11.2	9.6	7.1	7.9	14.3	10.6
1984	10.3	11.5	9.9	7.3	7.9	14.9	10.9
1985	10.5	11.9	10.1	7.3	8.0	15.4	11.5
1986	10.7	12.2	10.2	7.4	7.9	16.0	11.8
1987	10.8	12.2	10.6	7.4	7.9	16.4	11.9
1988	10.9	12.4	10.8	7.5	8.0	17.2	12.4
1989	11.0	12.6	10.6	7.5	8.1	17.7	12.8

NOTE: The proportion of cases with missing total time-to-degree data varied from year to year, from .6 to 2.1 percent.

SOURCE: National Research Council, Doctorate Records File, Survey of Earned Doctorates.

Indicator 2:16

Table 2:16-2 Median registered time-to-doctorate-degree among U.S. citizens and permanent U.S. residents, by field of study: 1970–1989

(Median years)

Year	Total	Humanities	Social and behavioral sciences	Natural sciences	Computer sciences and engineering	Education	Other technical/ professional
1970	5.6	6.0	5.6	5.3	5.3	6.3	5.4
1971	5.6	6.1	5.6	5.4	5.4	6.2	5.4
1972	5.8	6.2	5.8	5.6	5.6	6.2	5.6
1973	5.9	6.4	5.9	5.7	5.8	6.2	5.7
1974	6.0	6.6	5.9	5.6	5.7	6.4	5.8
1975	6.0	6.6	5.9	5.6	5.8	6.5	5.8
1976	6.0	6.8	6.0	5.6	5.8	6.4	5.9
1977	6.1	7.0	6.1	5.7	5.8	6.5	6.0
1978	6.2	7.2	6.2	5.7	5.9	6.6	6.0
1979	6.3	7.4	6.5	5.7	5.7	6.7	6.0
1980	6.4	7.6	6.6	5.8	5.8	7.0	6.1
1981	6.5	7.6	6.7	5.8	6.0	7.1	6.3
1982	6.6	8.0	6.9	5.9	6.1	7.3	6.4
1983	6.8	7.9	7.1	6.1	6.0	7.5	6.5
1984	7.0	8.2	7.3	6.2	5.9	7.8	6.7
1985	7.0	8.3	7.4	6.2	6.0	7.8	6.8
1986	7.0	8.3	7.4	6.2	6.1	7.9	7.0
1987	7.1	8.4	7.5	6.3	5.9	8.0	7.1
1988	7.2	8.5	7.7	6.3	6.0	8.3	7.1
1989	7.2	8.4	7.7	6.3	6.2	8.3	7.3

NOTE: The proportion of cases with missing registered time-to-degree data varied from year to year, from 5.1 to 8.2 percent.

SOURCE: National Research Council, Doctorate Records File, Survey of Earned Doctorates.

Indicator 2:16

Table 2:16-3 Percentage distribution of time-to-doctorate-degree among U.S. citizens and permanent U.S. residents, by field of study: 1989

Number of years	Total	Humanities	Social and behavioral sciences	Natural sciences	Computer sciences and engineering	Education	Other technical/ professional
				Total time-to-degree			
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5 or less	9.1	3.3	7.3	18.2	18.0	0.8	4.4
6-7	17.4	9.9	17.5	31.5	26.2	2.9	11.6
8-9	14.5	14.3	16.8	19.6	19.4	4.9	13.0
10-11	11.6	15.0	14.1	11.3	11.5	7.1	13.7
12-15	18.4	26.5	19.6	11.9	14.4	20.7	22.9
16 or more	29.1	31.0	24.8	7.5	10.5	63.6	34.4
				Registered time-to-degree			
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
5 or less	22.8	12.2	17.0	32.0	35.9	16.2	21.2
6-7	32.3	25.5	30.6	40.9	37.0	23.9	32.4
8-9	20.8	24.0	23.2	17.1	16.3	23.0	22.6
10-11	12.2	17.4	14.9	6.2	6.3	17.1	13.1
12-15	9.0	16.2	11.1	3.3	3.7	13.7	8.7
16 or more	2.9	4.7	3.1	0.6	0.8	6.1	2.0

NOTE: The proportion of cases with missing time-to-degree data varied by field of study. For total time-to-degree, the proportion ranged from 1.7 to 3.3 percent, and for registered time-to-degree, it ranged from 6.3 to 9.3 percent.

SOURCE: National Research Council, Doctorate Records File, Survey of Earned Doctorates.

Indicator 2:17

Table 2:17-1 *Median* salary of college graduates as a percent of the median salary of all college graduates who are working full time and not enrolled in college 1 year after graduation, by race/ethnicity, sex, and field of study: Years of graduation 1977, 1980, 1984, and 1986

Race/ethnicity, sex, and field of study	Year of graduation			
	1977	1980	1984	1986
Race/ethnicity				
White	101.1	100.6	100.6	100.0
Black	92.6	92.9	86.7	92.4
Hispanic	105.6	111.4	104.0	102.8
Asian	111.1	103.6	105.8	111.9
Native American	—	—	—	101.0
Sex				
Male	111.1	111.9	109.8	107.8
Female	88.0	86.2	90.2	93.3
Field of study				
Humanities	82.4	81.7	81.3	84.9
Social and behavioral sciences	89.8	85.7	86.7	93.3
Natural sciences	96.3	100.0	95.4	93.3
Computer science and engineering	144.4	157.1	144.5	136.3
Education	86.1	78.6	80.3	81.6
Business	114.1	110.7	104.0	103.6
Other technical/professional	106.5	104.9	98.3	98.1

— Too few sample cases for a reliable estimate.

NOTE: One-half of the group earns the *median* or higher salary and one half earns the *median* or lower salary. Unlike the *mean* or average salary, the *median* is relatively insensitive to the existence of very high and very low salaries in the group.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Table 2:17-2 Racial/ethnic, sex, and field of study distribution of baccalaureate degree recipients who are working full time and not enrolled in college 1 year after graduation: Years of graduation 1977, 1980, 1984, and 1986

(Percent of total)

Race/ethnicity, sex, and field of study	Year of graduation			
	1977	1980	1984	1986
Race/ethnicity	100.0	100.0	100.0	100.0
White	90.2	92.1	90.0	88.9
Black	6.1	5.2	4.9	3.9
Hispanic	1.5	1.4	2.3	3.3
Asian	1.6	1.0	2.4	2.0
Native American	0.2	0.4	0.4	0.8
Other	—	—	—	1.1
Sex	100.0	100.0	100.0	100.0
Male	57.1	51.2	50.5	49.6
Female	42.9	48.8	49.5	50.4
Field of study	100.0	100.0	100.0	100.0
Humanities	8.2	9.1	9.0	7.4
Social and behavioral sciences	14.7	11.9	11.7	10.3
Natural sciences	7.5	7.1	5.6	5.3
Computer science and engineering	9.1	9.6	15.8	17.3
Education	17.9	14.3	9.6	8.9
Business	24.0	25.3	28.5	31.8
Other technical/professional	18.5	22.6	19.7	19.0

— Not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Indicator 2:17

Table 2:17-3 *Median* salaries of college graduates who are working full time and not enrolled in college 1 year after graduation, by race/ethnicity, sex, and field of study: Years of graduation 1977, 1980, 1984, and 1986

(Constant 1990 dollars)

Race/ethnicity, sex, and field of study	Year of graduation			
	1977	1980	1984	1986
Total	$21,534	$20,022	$20,901	$22,089
Race/ethnicity				
White	21,773	20,079	21,022	22,086
Black	19,939	18,592	18,123	20,411
Hispanic	22,730	22,310	21,747	22,713
Asian	23,926	20,737	22,110	24,718
Native American	—	—	—	22,315
Sex				
Male	23,926	22,396	22,955	23,803
Female	18,942	17,253	18,848	20,599
Field of study				
Humanities	17,745	16,361	16,999	18,745
Social and behavioral sciences	19,340	17,162	18,123	20,599
Natural sciences	20,736	20,022	19,935	20,599
Computer science and engineering	31,104	31,463	30,204	30,097
Education	18,543	15,732	16,794	18,024
Business	24,572	22,167	21,747	22,887
Other technical/professional	22,929	21,001	20,539	21,661

— Too few sample cases for a reliable estimate.

NOTE: One-half of the group earns the *median* or higher salary and one half earns the *median* or lower salary. Unlike the *mean* or average salary, the *median* is relatively insensitive to the existence of very high and very low salaries in the group.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Table 2:17-4 *Mean* salaries of college graduates who are working full time and not enrolled in college 1 year after graduation, by race/ethnicity, sex, and field of study: Years of graduation 1977, 1980, 1984, and 1986

(Constant 1990 dollars)

Race/ethnicity, sex, and field of study	Year of graduation			
	1977	1980	1984	1986
Total	$23,406	$21,784	$22,058	$23,489
Race/ethnicity				
White	23,498	21,853	22,117	23,472
Black	20,918	20,452	20,040	22,105
Hispanic	21,944	23,250	22,516	23,085
Asian	24,042	21,685	23,067	27,093
Native American	—	—	—	23,835
Sex				
Male	26,257	24,598	24,265	25,675
Female	19,613	18,828	19,803	21,338
Field of study				
Humanities	18,756	18,802	17,840	19,257
Social behavioral sciences	22,194	19,230	19,592	22,385
Natural sciences	21,424	21,926	21,593	21,946
Computer science and engineering	31,146	31,626	29,174	29,486
Education	18,660	16,687	17,130	18,038
Business	26,823	23,190	22,784	24,079
Other technical/professional	23,550	21,734	21,204	22,282

— Too few sample cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Table 2:17-5 Standard errors for estimated *median* salaries in table 2:17-3
(Constant 1990 dollars)

Race/ethnicity, sex, and field of study	Year of graduation			
	1977	1980	1984	1986
Total	$397	$215	$302	$172
Race/ethnicity				
White	367	286	249	172
Black	562	277	507	858
Hispanic	1,595	2,782	593	572
Asian	1,495	1,567	655	1,030
Native American	—	—	—	1,648
Sex				
Male	219	243	288	114
Female	214	215	48	(*)
Field of study				
Humanities	1,270	715	582	458
Social and behavioral sciences	299	261	312	481
Natural sciences	853	972	483	401
Computer science and engineering	798	501	242	298
Education	179	36	205	229
Business	498	429	(*)	114
Other technical/professional	897	363	503	220

— Too few sample cases for a reliable estimate.

* The procedure for estimating the standard error of the median does not account for a large number of sample respondents earning the median salary. In this case the procedure produced an estimate of zero due to a group of approximately 5 percent of the sample earning the median salary. The standard error although small is not zero.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Table 2:17-6 Standard errors for estimated *mean* salaries in table 2:17-4

(Constant 1990 dollars)

Race/ethnicity, sex, and field of study	Year of graduation 1977	1980	1984	1986
Total	$432	$304	$234	$187
Race/ethnicity				
White	429	315	253	199
Black	663	944	587	726
Hispanic	1334	1798	636	522
Asian	1560	1554	716	805
Native American	—	—	—	1,093
Sex				
Male	473	431	301	234
Female	286	237	184	198
Field of study				
Humanities	587	804	285	312
Social and behavioral sciences	816	620	403	647
Natural sciences	590	1010	586	334
Computer science and engineering	583	745	265	263
Education	212	238	374	215
Business	831	603	400	338
Other technical/professional	916	641	511	269

— Too few sample cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Recent College Graduates surveys.

Indicator 2:18

Table 2:18-1 Labor force participation rate of 25- to 34-year-old *males*, by years of schooling completed: 1971–1990

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	95.8	91.2	95.9	97.9	94.3	95.2
1972	95.7	90.8	95.5	97.7	94.1	95.5
1973	95.3	91.9	95.4	96.5	91.9	95.8
1974	95.4	89.8	96.2	96.8	93.6	95.0
1975	94.7	89.8	93.7	96.1	94.2	96.1
1976	94.8	85.4	91.7	96.8	94.8	95.5
1977	95.2	87.5	94.6	96.4	94.1	96.2
1978	95.1	87.9	92.1	96.6	94.8	95.8
1979	95.1	86.3	91.5	96.5	95.2	97.0
1980	94.4	83.5	90.4	96.3	94.2	95.7
1981	94.7	85.2	91.6	96.1	94.2	96.1
1982	94.4	83.1	91.1	95.9	93.8	95.8
1983	94.0	81.2	92.2	94.9	94.2	95.2
1984	93.5	78.6	89.6	94.9	94.2	94.8
1985	93.8	81.9	89.8	95.1	94.4	94.9
1986	93.8	82.5	88.9	95.0	93.7	95.7
1987	93.6	85.1	89.3	94.6	93.9	94.9
1988	93.4	80.9	88.4	94.4	93.7	95.9
1989	93.8	84.3	89.3	94.1	94.8	95.9
1990	92.1	80.2	86.4	92.9	93.0	94.9

NOTE: The labor force participation rate is the percent of the population either employed or unemployed, that is, without a job and looking for work. Those not in the labor force are neither employed nor looking for work.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Table 2:18-2 Employment rate of 25- to 34-year-old *males*, by years of schooling completed: 1971–1990

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	90.9	82.2	87.9	93.6	89.9	92.5
1972	91.6	85.0	88.5	93.7	90.4	93.6
1973	91.3	83.9	88.8	93.1	88.5	93.5
1974	91.5	82.9	90.2	93.0	90.0	92.7
1975	87.4	73.3	78.1	88.4	87.6	93.5
1976	88.4	74.9	79.6	89.6	89.0	92.8
1977	88.9	74.2	81.5	89.5	89.1	93.3
1978	90.1	77.0	82.4	90.8	91.2	93.5
1979	90.3	78.6	80.5	91.3	90.9	94.1
1980	88.1	71.6	77.7	87.0	88.5	93.4
1981	87.5	75.0	76.7	86.9	88.5	93.7
1982	84.4	68.0	73.2	83.3	85.2	91.9
1983	81.6	64.2	69.3	78.6	83.8	91.1
1984	85.3	67.0	72.2	84.8	87.9	91.9
1985	86.9	73.0	76.0	86.1	89.7	92.2
1986	86.7	69.4	73.3	86.2	89.0	93.7
1987	86.8	73.3	75.0	86.8	89.0	92.1
1988	87.4	71.4	75.5	87.2	89.8	93.7
1989	88.4	76.4	77.6	87.8	91.1	93.7
1990	87.9	75.0	75.9	88.6	89.7	93.1

NOTE: The employment rate is the percent of the population employed.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Table 2:18-3 Unemployment rate of 25- to 34-year-old *males*, by years of schooling completed: 1971–1990

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	5.2	9.8	8.3	4.4	4.6	2.8
1972	4.3	6.4	7.3	4.1	4.0	2.0
1973	4.2	8.7	6.9	3.5	3.7	2.4
1974	4.1	7.7	6.3	4.0	3.9	2.4
1975	7.6	18.4	16.7	9.5	6.1	2.4
1976	6.8	12.3	13.2	7.5	6.1	2.8
1977	6.7	15.2	13.9	7.1	5.4	3.0
1978	5.2	12.4	10.5	6.0	3.8	2.4
1979	5.0	9.0	12.1	5.4	4.5	2.0
1980	6.7	14.3	14.1	9.7	6.0	2.5
1981	7.6	11.9	16.3	9.5	6.1	2.4
1982	10.6	18.2	19.6	13.1	9.2	4.0
1983	13.1	20.9	24.8	17.2	11.1	4.3
1984	8.7	14.7	19.5	10.6	6.7	3.0
1985	7.3	10.8	15.3	9.5	4.9	2.8
1986	7.5	15.9	17.6	9.3	5.0	2.1
1987	7.3	13.8	16.0	8.2	5.3	3.0
1988	6.4	11.7	14.6	7.6	4.2	2.3
1989	5.7	9.3	13.1	6.7	3.9	2.3
1990	4.5	6.5	12.1	4.6	3.6	1.9

NOTE: The unemployment rate is the percent of the labor force unemployed. The unemployed are those without a job and looking for work. The labor force is the sum of those with jobs and those unemployed; it excludes those without jobs and not looking for work.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Table 2:18-4 Labor force participation rate of 25- to 34-year-old *females*, by years of schooling completed: 1971–1990

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	46.0	32.9	40.6	46.2	47.7	59.2
1972	47.9	37.0	40.8	47.3	49.9	61.5
1973	50.1	37.0	41.8	48.4	53.0	64.2
1974	52.6	37.0	44.5	50.2	56.5	68.7
1975	54.2	36.7	42.6	53.3	57.5	68.9
1976	56.8	38.4	46.0	54.6	60.9	71.3
1977	59.3	36.7	48.7	57.8	62.2	72.4
1978	61.9	41.0	49.2	60.2	66.4	74.3
1979	63.5	40.0	49.9	61.9	67.4	76.6
1980	66.0	41.6	52.8	64.3	70.5	77.5
1981	67.4	38.7	51.3	66.9	71.6	78.7
1982	68.0	41.4	48.3	66.6	73.1	80.7
1983	68.8	39.3	49.1	66.3	74.2	82.6
1984	69.9	37.5	51.3	67.8	74.2	82.9
1985	71.1	42.6	49.6	69.9	75.5	82.8
1986	71.4	40.5	54.8	69.8	75.2	82.4
1987	72.3	39.6	53.7	71.2	76.0	83.5
1988	72.7	38.3	55.4	71.1	78.3	83.2
1989	72.7	43.4	50.6	71.1	77.4	84.1
1990	73.3	44.3	52.7	71.6	77.6	84.9

NOTE: The labor force participation rate is the percent of the population either employed or unemployed, that is, without a job and looking for work. Those not in the labor force are neither employed nor looking for work.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Table 2:18-5 Employment rate of 25- to 34-year-old *females*, by years of schooling completed: 1971–1990

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	42.7	29.3	35.2	43.1	44.9	56.9
1972	45.1	33.5	36.1	44.9	47.4	59.8
1973	47.4	32.8	38.4	45.7	51.0	62.6
1974	49.7	33.3	39.8	47.6	54.2	66.6
1975	49.3	30.5	34.5	48.0	53.6	66.4
1976	52.3	33.7	39.5	49.8	56.5	68.8
1977	54.6	31.8	41.0	53.0	58.0	69.5
1978	57.9	35.6	42.4	55.9	63.3	72.1
1979	59.6	33.6	43.2	58.0	64.2	74.0
1980	61.6	35.0	45.6	59.5	66.3	75.5
1981	62.5	32.5	42.7	61.3	67.6	76.4
1982	62.1	32.8	39.7	59.6	68.2	77.7
1983	62.1	31.3	37.1	58.8	68.3	79.2
1984	64.2	31.7	41.5	61.0	69.5	80.4
1985	65.9	35.1	40.3	63.9	71.0	80.6
1986	66.2	35.2	44.1	63.8	70.6	80.3
1987	67.5	34.3	44.0	65.6	72.2	81.4
1988	68.8	34.5	46.9	66.8	74.8	81.2
1989	68.9	38.3	43.0	66.9	74.0	82.1
1990	69.9	38.6	44.3	67.5	74.5	83.2

NOTE: The employment rate is the percent of the population employed.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Table 2:18-6 Unemployment rate of 25- to 34-year-old *females*, by years of schooling completed: 1971–1990

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	7.3	11.1	13.2	6.6	5.9	4.0
1972	5.8	9.5	11.4	5.1	5.1	2.8
1973	5.3	11.4	8.2	5.7	3.7	2.6
1974	5.5	10.1	10.5	5.3	4.2	3.1
1975	9.1	17.1	19.0	10.1	6.9	3.6
1976	8.0	12.2	14.0	8.8	7.2	3.6
1977	7.9	13.2	15.7	8.3	6.8	4.1
1978	6.5	13.1	13.8	7.2	4.7	2.9
1979	6.2	16.0	13.5	6.2	4.7	3.5
1980	6.8	15.7	13.6	7.5	5.9	2.6
1981	7.3	16.0	16.6	8.5	5.6	2.9
1982	8.8	20.8	17.8	10.6	6.7	3.7
1983	9.7	20.3	24.4	11.3	7.9	4.1
1984	8.1	15.4	19.1	10.1	6.4	3.1
1985	7.3	17.7	18.8	8.6	5.9	2.7
1986	7.3	13.2	19.4	8.6	6.1	2.5
1987	6.6	13.4	18.0	7.9	5.0	2.5
1988	5.4	10.1	15.1	6.1	4.4	2.4
1989	5.3	11.9	15.0	5.9	4.4	2.3
1990	5.1	13.0	15.9	5.7	4.0	2.0

NOTE: The unemployment rate is the percent of the labor force unemployed. The unemployed are those without a job and looking for work. The labor force is the sum of those with jobs and those unemployed; it excludes those without jobs and not looking for work.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Indicator 2:18

Table 2:18-7 Standard errors for estimated percentages in table 2:18-1

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	0.3	1.2	0.7	0.3	0.7	0.6
1972	0.3	1.2	0.7	0.3	0.7	0.6
1973	0.3	1.1	0.7	0.4	0.8	0.5
1974	0.3	1.3	0.7	0.3	0.7	0.5
1975	0.3	1.4	0.9	0.4	0.6	0.5
1976	0.3	1.7	1.0	0.3	0.6	0.5
1977	0.2	1.7	0.8	0.4	0.6	0.4
1978	0.2	1.6	1.0	0.3	0.5	0.4
1979	0.2	1.6	1.0	0.3	0.5	0.4
1980	0.3	1.9	1.1	0.4	0.6	0.4
1981	0.3	1.8	1.0	0.4	0.6	0.4
1982	0.3	2.0	1.1	0.4	0.6	0.4
1983	0.3	2.0	1.0	0.4	0.5	0.5
1984	0.3	2.0	1.1	0.4	0.6	0.5
1985	0.3	2.0	1.1	0.4	0.5	0.5
1986	0.3	1.9	1.1	0.4	0.6	0.4
1987	0.3	1.8	1.0	0.4	0.6	0.5
1988	0.3	2.0	1.0	0.4	0.6	0.4
1989	0.3	1.9	1.0	0.4	0.5	0.4
1990	0.3	1.9	1.1	0.4	0.6	0.5

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Table 2:18-8 Standard errors for estimated percentages in table 2:18-2

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
			Percent			
1971	0.4	1.7	1.1	0.5	1.0	0.8
1972	0.4	1.6	1.1	0.5	0.9	0.7
1973	0.4	1.6	1.1	0.5	1.0	0.7
1974	0.3	1.7	1.1	0.5	0.9	0.7
1975	0.4	2.1	1.5	0.6	0.9	0.6
1976	0.4	2.3	1.5	0.6	0.8	0.6
1977	0.4	2.3	1.4	0.6	0.8	0.5
1978	0.3	2.2	1.4	0.6	0.7	0.5
1979	0.3	2.1	1.5	0.5	0.7	0.5
1980	0.4	2.5	1.7	0.7	0.8	0.6
1981	0.4	2.4	1.6	0.6	0.8	0.5
1982	0.4	2.7	1.7	0.7	0.9	0.6
1983	0.4	2.7	1.8	0.8	0.9	0.6
1984	0.4	2.6	1.7	0.6	0.8	0.6
1985	0.4	2.5	1.6	0.6	0.7	0.6
1986	0.4	2.5	1.6	0.6	0.7	0.5
1987	0.4	2.4	1.5	0.6	0.8	0.6
1988	0.4	2.5	1.5	0.6	0.7	0.5
1989	0.3	2.4	1.5	0.6	0.7	0.5
1990	0.4	2.3	1.5	0.5	0.7	0.6

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Table 2:18-9 Standard errors for estimated percentages in table 2:18-3

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	0.3	1.3	1.0	0.4	0.7	0.5
1972	0.3	1.1	0.9	0.4	0.6	0.4
1973	0.3	1.2	0.9	0.4	0.6	0.4
1974	0.2	1.2	0.9	0.4	0.6	0.4
1975	0.3	1.8	1.4	0.6	0.7	0.4
1976	0.3	1.7	1.3	0.5	0.6	0.4
1977	0.3	1.9	1.3	0.5	0.6	0.4
1978	0.3	1.7	1.2	0.5	0.5	0.3
1979	0.2	1.5	1.3	0.4	0.5	0.3
1980	0.3	1.9	1.4	0.6	0.6	0.3
1981	0.3	1.8	1.4	0.6	0.6	0.3
1982	0.4	2.2	1.6	0.6	0.7	0.4
1983	0.4	2.3	1.7	0.7	0.8	0.4
1984	0.3	2.0	1.5	0.6	0.6	0.4
1985	0.3	1.7	1.4	0.5	0.5	0.4
1986	0.3	2.0	1.4	0.5	0.5	0.3
1987	0.3	1.9	1.3	0.5	0.5	0.4
1988	0.3	1.8	1.2	0.5	0.5	0.3
1989	0.3	1.7	1.2	0.4	0.5	0.3
1990	0.2	1.3	1.2	0.4	0.4	0.3

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

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Table 2:18-10 Standard errors for estimated percentages in table 2:18-4

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	0.6	2.1	1.5	0.9	1.7	1.7
1972	0.6	2.2	1.5	0.9	1.6	1.6
1973	0.6	2.1	1.5	0.9	1.6	1.5
1974	0.6	2.2	1.5	0.9	1.4	1.3
1975	0.6	2.2	1.5	0.8	1.4	1.3
1976	0.6	2.3	1.6	0.8	1.3	1.2
1977	0.5	2.3	1.5	0.8	1.3	1.1
1978	0.5	2.3	1.6	0.8	1.2	1.1
1979	0.5	2.4	1.6	0.8	1.1	1.0
1980	0.5	2.5	1.7	0.8	1.1	1.0
1981	0.5	2.5	1.7	0.8	1.1	1.0
1982	0.5	2.5	1.7	0.8	1.0	0.9
1983	0.5	2.6	1.7	0.8	1.0	0.9
1984	0.5	2.6	1.7	0.8	1.0	0.8
1985	0.5	2.7	1.8	0.7	1.0	0.8
1986	0.5	2.6	1.7	0.7	1.0	0.8
1987	0.5	2.6	1.7	0.7	0.9	0.8
1988	0.5	2.5	1.8	0.7	0.9	0.8
1989	0.5	2.7	1.8	0.7	0.9	0.8
1990	0.5	2.6	1.7	0.7	0.9	0.8

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Table 2:18-11 Standard errors for estimated percentages in table 2:18-5

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	0.9	3.5	2.3	1.3	2.4	2.2
1972	0.9	3.5	2.3	1.3	2.3	2.0
1973	0.8	3.4	2.3	1.2	2.2	1.9
1974	0.8	3.6	2.2	1.2	1.9	1.6
1975	0.8	3.4	2.2	1.2	1.9	1.5
1976	0.7	3.6	2.3	1.1	1.7	1.4
1977	0.7	3.7	2.2	1.1	1.6	1.3
1978	0.7	3.5	2.2	1.1	1.5	1.3
1979	0.7	3.6	2.2	1.0	1.4	1.2
1980	0.7	3.8	2.4	1.0	1.4	1.2
1981	0.6	3.9	2.4	1.0	1.3	1.2
1982	0.6	3.8	2.4	1.0	1.3	1.1
1983	0.6	3.9	2.4	1.0	1.3	1.0
1984	0.6	4.0	2.4	1.0	1.2	1.0
1985	0.6	3.9	2.4	0.9	1.2	1.0
1986	0.6	4.0	2.3	0.9	1.2	1.0
1987	0.6	4.0	2.3	0.9	1.1	0.9
1988	0.6	4.0	2.4	0.9	1.1	0.9
1989	0.6	4.0	2.4	0.9	1.1	0.9
1990	0.6	3.8	2.4	0.9	1.1	0.9

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Table 2:18-12 Standard errors for estimated percentages in table 2:18-6

Year	Total	Less than 9 years of school	9-11 years of school	12 years of school	1-3 years of college	4 or more years of college
				Percent		
1971	0.5	2.4	1.6	0.7	1.1	0.9
1972	0.4	2.2	1.5	0.6	1.0	0.7
1973	0.4	2.3	1.3	0.6	0.8	0.6
1974	0.4	2.3	1.4	0.5	0.8	0.6
1975	0.4	2.8	1.8	0.7	0.9	0.6
1976	0.4	2.5	1.6	0.6	0.9	0.6
1977	0.4	2.7	1.6	0.6	0.8	0.6
1978	0.3	2.5	1.6	0.6	0.6	0.5
1979	0.3	2.8	1.5	0.5	0.6	0.5
1980	0.3	2.9	1.6	0.6	0.7	0.4
1981	0.3	3.1	1.8	0.6	0.7	0.5
1982	0.4	3.3	1.9	0.6	0.7	0.5
1983	0.4	3.4	2.1	0.6	0.7	0.5
1984	0.3	3.1	1.9	0.6	0.7	0.4
1985	0.3	3.2	1.9	0.5	0.6	0.4
1986	0.3	2.8	1.9	0.5	0.6	0.4
1987	0.3	2.9	1.8	0.5	0.5	0.4
1988	0.3	2.5	1.7	0.4	0.5	0.4
1989	0.3	2.7	1.8	0.4	0.5	0.4
1990	0.3	2.6	1.8	0.4	0.5	0.3

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Surveys.

Indicator 2:18

Supplemental note 2:18 Labor force statistics

The Bureau of Labor Statistics uses three categories to classify the labor force status of an individual: (1) employed, (2) unemployed, and (3) not in the labor force. An *employed* individual is someone with a job and working. Also included are those not working but with jobs from which they are temporarily absent because of illness, vacation, labor-management disputes, bad weather, and personal reasons. Those in the military are also counted as employed. An *unemployed* individual is someone without a job, available for work, and who has made specific efforts to find employment some time during the prior 4 weeks. Also included are persons waiting to be recalled to a job from which they had been laid off or are waiting to report to a new job within 30 days. Individuals who are neither employed nor unemployed are *not in the labor force.*

The *labor force* comprises all persons classified as employed or unemployed. The *unemployment rate* represents the number unemployed as a percent of the labor force. The *labor force participation rate* is the ratio of the labor force to the population. The *employment-population* ratio is the percentage of employed individuals in the population. We refer to the last statistic as the *employment rate* in *Indicator 2:18.*

Each of these statistics is typically reported in two forms, one that includes the military and one that excludes them. For instance, the *civilian employment-population ratio* is the percentage of all employed civilians in the civilian non-institutional population. The *civilian labor force participation rate* is the ratio of the civilian labor force to the civilian non-institutional population. The labor force statistics reported in *Indicator 2:18* and its associated supplemental tables are all for the civilian non-institutional population.

Each of these measures can be computed for groups classified by age, sex, race, Hispanic origin, etc.

Further elaboration on these labor force statistics is available in the explanatory notes of *Employment and Earnings*, published monthly by the Bureau of Labor Statistics of the U.S. Department of Labor.

Table 2:19-1 Ratio of median annual earnings of *male* wage and salary workers 25 to 34 years old with 9-11, 13-15, and 16 or more years of school to those with 12 years of school, by race/ethnicity: 1975–1989

Year	9-11 years of school			13-15 years of school			16 or more years of school		
	White	Black	Hispanic*	White	Black	Hispanic*	White	Black	Hispanic*
				All wage and salary workers					
1975	0.81	0.67	—	1.09	1.04	—	1.18	1.29	—
1976	0.79	0.80	0.89	1.02	1.07	0.97	1.14	1.41	1.17
1977	0.79	0.77	0.86	1.02	1.13	0.96	1.15	1.42	1.29
1978	0.78	0.74	0.79	1.01	1.30	1.00	1.13	1.48	1.23
1979	0.79	0.78	0.82	1.03	1.17	1.16	1.11	1.31	1.22
1980	0.80	0.75	0.92	1.03	1.13	1.20	1.18	1.33	1.27
1981	0.78	0.68	0.91	1.08	1.12	1.21	1.29	1.34	1.27
1982	0.72	0.77	0.74	1.11	1.04	1.14	1.33	1.55	1.47
1983	0.75	0.65	0.71	1.12	1.32	1.10	1.34	1.50	1.34
1984	0.64	0.61	0.79	1.13	1.16	1.13	1.32	1.53	1.27
1985	0.73	0.70	0.86	1.18	1.13	1.34	1.45	1.77	1.81
1986	0.72	0.85	0.83	1.16	1.26	1.28	1.43	1.64	1.71
1987	0.72	0.86	0.77	1.10	1.27	1.16	1.38	1.47	1.57
1988	0.70	0.56	0.70	1.08	1.12	1.10	1.41	1.37	1.29
1989	0.73	0.60	0.75	1.12	1.21	1.23	1.45	1.42	1.31
				Year-round, full-time wage and salary workers					
1975	0.86	0.73	—	1.10	1.05	—	1.18	1.21	—
1976	0.88	0.81	0.90	1.06	1.11	1.07	1.18	1.30	1.35
1977	0.83	0.81	0.89	1.05	1.16	1.02	1.14	1.40	1.32
1978	0.82	0.71	0.76	1.01	1.16	0.95	1.11	1.24	1.15
1979	0.85	0.78	0.87	1.04	1.07	1.14	1.14	1.32	1.28
1980	0.86	0.69	0.92	1.06	1.07	1.17	1.20	1.22	1.22
1981	0.85	0.69	0.92	1.10	1.04	1.22	1.25	1.30	1.35
1982	0.81	0.80	0.78	1.10	1.03	1.11	1.25	1.36	1.36
1983	0.77	0.74	0.82	1.09	1.20	1.08	1.27	1.51	1.29
1984	0.78	0.75	0.85	1.09	1.23	1.07	1.23	1.50	1.25
1985	0.79	0.73	0.90	1.14	1.09	1.35	1.31	1.63	1.65
1986	0.79	0.79	0.87	1.14	1.18	1.15	1.32	1.50	1.50
1987	0.80	0.89	0.75	1.09	1.20	1.13	1.32	1.46	1.36
1988	0.79	0.81	0.77	1.14	1.26	1.07	1.40	1.31	1.28
1989	0.82	0.75	0.89	1.16	1.14	1.19	1.47	1.30	1.37

— Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Survey.

Table 2:19-2 Ratio of median annual earnings of *female* wage and salary workers 25 to 34 years old with 9-11, 13-15, and 16 or more years of school to those with 12 years of school, by race/ethnicity: 1975–1989

	9-11 years of school			13-15 years of school			16 or more years of school		
Year	White	Black	Hispanic[1]	White	Black	Hispanic[1]	White	Black	Hispanic[1]
				All wage and salary workers					
1975	0.65	0.60	—	1.23	1.31	—	1.74	1.70	—
1976	0.61	0.58	0.84	1.15	1.16	1.12	1.61	1.58	1.78
1977	0.62	0.63	0.76	1.23	1.20	1.13	1.53	1.61	1.60
1978	0.55	0.48	0.50	1.16	1.21	1.08	1.58	1.38	1.65
1979	0.71	0.66	0.67	1.21	1.24	1.15	1.56	1.53	1.51
1980	0.63	0.73	0.71	1.24	1.24	1.11	1.54	1.65	1.48
1981	0.62	0.56	—	1.23	1.21	—	1.55	1.58	—
1982	0.66	0.69	0.80	1.21	1.21	1.28	1.61	1.65	1.53
1983	0.66	0.65	0.68	1.31	1.11	1.40	1.69	1.59	1.73
1984	0.58	0.52	0.61	1.24	1.27	1.23	1.59	1.68	1.55
1985	0.62	0.66	0.72	1.22	1.22	1.13	1.64	1.76	1.67
1986	0.62	0.78	0.55	1.24	1.30	1.26	1.74	1.92	1.64
1987	0.70	0.56	0.67	1.21	1.35	1.35	1.72	1.93	1.83
1988	0.53	0.62	0.64	1.29	1.34	1.14	1.78	1.93	1.70
1989	0.66	0.50	0.72	1.30	1.44	1.28	1.89	2.05	2.02
				Year-round, full-time wage and salary workers					
1975	0.80	0.65	—	1.14	1.11	—	1.39	1.29	—
1976	0.82	0.73	0.65	1.12	1.10	1.07	1.35	1.45	1.40
1977	0.83	0.75	0.87	1.11	1.10	1.15	1.27	1.43	1.32
1978	0.83	0.78	0.81	1.08	1.13	1.13	1.28	1.20	1.28
1979	0.82	0.86	0.79	1.12	1.18	1.27	1.32	1.37	1.37
1980	0.79	0.80	0.73	1.12	1.09	1.15	1.35	1.37	1.41
1981	0.77	0.67	0.92	1.15	1.10	1.23	1.38	1.33	1.39
1982	0.77	0.92	0.74	1.15	1.21	1.05	1.36	1.39	1.22
1983	0.79	0.70	0.92	1.20	1.16	1.19	1.36	1.33	1.35
1984	0.84	0.70	0.88	1.14	1.13	1.15	1.41	1.49	1.47
1985	0.84	0.77	0.87	1.15	1.13	1.15	1.46	1.46	1.45
1986	0.83	0.82	0.76	1.19	1.14	1.04	1.49	1.58	1.31
1987	0.78	0.82	0.75	1.14	1.25	1.14	1.50	1.53	1.51
1988	0.70	0.77	0.71	1.20	1.32	1.35	1.55	1.62	1.54
1989	0.73	([2])	([2])	1.19	1.20	1.21	1.59	1.58	1.63

— Not available.

[1] Hispanics may be of any race.

[2] Too few sample cases for a reliable estimate.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Survey.

Table 2:19-3 Median annual earnings of wage and salary workers 25 to 34 years old with 12 years of school, by sex and race/ethnicity: 1975–1989 (constant 1990 dollars)

Year	Male			Female		
	White	Black	Hispanic*	White	Black	Hispanic*
			All wage and salary workers			
1975	$26,820	$21,909	—	$11,609	$13,338	—
1976	27,510	19,864	$23,795	12,075	14,385	$12,127
1977	27,328	20,158	22,443	12,497	13,903	12,608
1978	27,648	20,390	24,380	12,097	14,315	12,468
1979	27,054	19,827	21,357	12,394	13,144	12,476
1980	24,747	18,030	19,796	12,422	12,445	12,049
1981	22,943	17,852	19,223	12,067	12,370	—
1982	21,481	16,025	18,469	11,739	12,168	11,974
1983	21,731	15,296	18,752	11,752	12,994	11,364
1984	22,832	15,375	19,601	12,499	12,327	12,562
1985	21,634	16,258	17,009	12,724	11,451	12,331
1986	21,986	14,952	17,766	12,599	11,159	12,838
1987	22,574	14,830	18,320	13,190	11,925	12,802
1988	22,640	16,890	18,527	12,836	11,749	12,431
1989	21,952	16,020	17,138	12,311	10,983	12,007
			Year-round, full-time wage and salary workers			
1975	$27,050	$25,985	—	$17,952	$18,526	—
1976	29,172	24,190	$26,094	18,371	17,844	$17,618
1977	29,725	22,441	24,844	18,765	17,631	17,798
1978	30,236	25,986	27,875	18,487	17,788	17,554
1979	28,957	23,310	24,658	17,921	16,558	16,481
1980	26,916	21,615	22,747	17,497	16,586	16,750
1981	25,713	22,036	21,917	16,914	16,383	15,779
1982	25,153	20,333	21,716	16,964	15,595	16,556
1983	25,628	18,533	21,510	16,922	16,295	16,013
1984	26,265	18,042	23,517	17,326	15,435	16,446
1985	25,134	18,848	19,607	17,645	15,019	16,924
1986	25,106	18,457	21,164	17,496	15,133	18,384
1987	25,188	17,965	22,149	17,564	15,509	17,024
1988	24,658	18,527	21,785	17,413	14,823	16,469
1989	22,740	18,877	19,224	16,847	15,778	16,217

— Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Survey.

Indicator 2:19

Table 2:19-4 Standard errors for estimated ratios in table 2:19-1

Year	9-11 years of school			13-15 years of school			16 or more years of school		
	White	Black	Hispanic*	White	Black	Hispanic*	White	Black	Hispanic*
				All wage and salary workers					
1975	—	—	—	—	—	—	—	—	—
1976	0.03	0.08	0.09	0.02	0.10	0.12	0.02	0.15	0.23
1977	0.02	0.05	0.08	0.02	0.07	0.08	0.02	0.09	0.15
1978	0.02	0.06	0.11	0.02	0.10	0.09	0.02	0.12	0.16
1979	0.03	0.07	0.07	0.01	0.07	0.15	0.02	0.11	0.15
1980	0.02	0.04	0.10	0.02	0.07	0.12	0.02	0.11	0.18
1981	0.02	0.06	0.11	0.02	0.07	0.14	0.02	0.11	0.20
1982	0.03	0.07	0.10	0.02	0.08	0.12	0.02	0.12	0.17
1983	0.02	0.04	0.11	0.03	0.07	0.09	0.02	0.13	0.15
1984	0.03	0.04	0.10	0.02	0.08	0.12	0.03	0.09	0.16
1985	0.03	0.05	0.07	0.02	0.06	0.11	0.02	0.13	0.11
1986	0.03	0.05	0.08	0.02	0.07	0.10	0.02	0.11	0.09
1987	0.03	0.09	0.05	0.02	0.08	0.10	0.03	0.13	0.11
1988	0.03	0.05	0.05	0.02	0.08	0.10	0.04	0.07	0.13
1989	0.02	0.07	0.07	0.02	0.08	0.10			
				Year-round, full-time wage and salary workers					
1975	—	—	—	—	—	—	—	—	—
1976	0.03	0.08	0.11	0.02	0.11	0.15	0.03	0.14	0.24
1977	0.02	0.05	0.08	0.02	0.06	0.11	0.02	0.08	0.14
1978	0.02	0.08	0.10	0.01	0.08	0.11	0.01	0.09	0.13
1979	0.03	0.04	0.11	0.02	0.06	0.13	0.02	0.10	0.19
1980	0.03	0.06	0.10	0.02	0.07	0.12	0.02	0.09	0.17
1981	0.03	0.06	0.11	0.02	0.06	0.16	0.02	0.12	0.18
1982	0.03	0.10	0.08	0.02	0.07	0.12	0.03	0.10	0.13
1983	0.02	0.08	0.08	0.02	0.07	0.11	0.03	0.12	0.10
1984	0.03	0.05	0.10	0.02	0.09	0.12	0.01	0.11	0.16
1985	0.03	0.06	0.08	0.02	0.05	0.12	0.02	0.06	0.10
1986	0.02	0.04	0.07	0.02	0.07	0.08	0.02	0.11	0.09
1987	0.02	0.06	0.07	0.02	0.08	0.10	0.02	0.11	0.09
1988	0.03	0.09	0.08	0.02	0.08	0.09	0.02	0.14	0.14
1989	0.03	0.05	0.07	0.02	0.06	0.13	0.02	0.09	0.20

— Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Survey.

Table 2:19-5 Standard errors for estimated ratios in table 2:19-2

Year	9-11 years of school			13-15 years of school			16 or more years of school		
	White	Black	Hispanic[1]	White	Black	Hispanic[1]	White	Black	Hispanic[1]
					All wage and salary workers				
1975	—	—	—	—	—	—	—	—	—
1976	0.06	0.08	0.15	0.06	0.10	0.20	0.06	0.17	0.34
1977	0.04	0.07	0.13	0.04	0.06	0.22	0.05	0.09	0.24
1978	0.03	0.07	0.14	0.04	0.08	0.22	0.05	0.09	0.24
1979	0.05	0.07	0.13	0.04	0.09	0.20	0.04	0.11	0.26
1980	0.05	0.09	0.15	0.04	0.08	0.18	0.04	0.09	0.22
1981	0.04	0.06	—	0.03	0.08	—	0.04	0.12	—
1982	0.04	0.08	0.14	0.04	0.08	0.15	0.05	0.10	0.19
1983	0.04	0.05	0.16	0.04	0.08	0.18	0.04	0.08	0.20
1984	0.04	0.12	0.13	0.03	0.06	0.14	0.03	0.11	0.20
1985	0.05	0.06	0.11	0.03	0.09	0.14	0.04	0.12	0.20
1986	0.04	0.08	0.13	0.04	0.09	0.13	0.04	0.15	0.17
1987	0.04	0.06	0.09	0.03	0.10	0.14	0.05	0.09	0.17
1988	0.04	0.08	0.11	0.04	0.11	0.14	0.04	0.09	0.20
1989	0.05	0.10	0.10	0.04	0.10	0.14	0.04	0.13	0.20
					Year-round, full-time wage and salary workers				
1975	—	—	—	—	—	—	—	—	—
1976	0.05	0.04	0.09	0.04	0.06	0.21	0.04	0.13	0.20
1977	0.03	0.04	0.12	0.02	0.05	0.10	0.02	0.08	0.11
1978	0.04	0.07	0.13	0.02	0.06	0.15	0.03	0.07	0.16
1979	0.04	0.08	0.12	0.02	0.07	0.19	0.02	0.09	0.18
1980	0.04	0.10	0.12	0.02	0.06	0.14	0.03	0.08	0.18
1981	0.04	0.05	0.14	0.02	0.06	0.14	0.03	0.12	0.21
1982	0.04	0.06	0.08	0.03	0.07	0.11	0.02	0.07	0.17
1984	0.05	0.04	0.13	0.02	0.05	0.11	0.03	0.11	0.16
1985	0.05	0.07	0.11	0.03	0.06	0.12	0.03	0.09	0.15
1986	0.03	0.05	0.08	0.03	0.07	0.06	0.03	0.11	0.10
1987	0.03	0.08	0.09	0.02	0.07	0.08	0.03	0.07	0.11
1988	0.03	0.15	0.10	0.04	0.10	0.19	0.04	0.09	0.16
1989	0.03	([2])	([2])	0.03	0.08	0.15	0.03	0.11	0.19

— Not available.

[1] Hispanics may be of any race.

[2] Too few sample observations for a reliable estimate.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Survey.

Table 2:19-6 Standard errors for estimated medians in table 2:19-3 (constant 1990 dollars)

Year	Male			Female		
	White	Black	Hispanic*	White	Black	Hispanic*
			All wage and salary workers			
1975	—	—	—	—	—	—
1976	$303	$494	$703	$151	$356	$553
1977	203	404	646	123	232	503
1978	309	567	975	128	255	557
1979	377	500	765	154	319	624
1980	312	510	1,022	162	324	524
1981	354	463	869	157	385	—
1982	410	479	989	188	401	677
1983	315	421	943	178	367	724
1984	437	328	1,373	160	379	728
1985	449	408	768	181	463	744
1986	458	443	771	164	540	735
1987	444	527	830	227	346	816
1988	513	501	820	198	396	657
1989	222	634	718	207	539	613
			Year-round, full-time wage and salary workers			
1975	—	—	—	—	—	—
1976	$157	$550	$714	$181	$304	$604
1977	153	240	670	116	233	550
1978	111	600	1,086	146	313	686
1979	152	430	1,218	105	299	691
1980	179	603	1,022	127	363	617
1981	238	526	1,122	163	479	736
1982	275	606	873	145	433	912
1983	308	618	871	165	388	815
1984	199	490	1,373	200	357	810
1985	236	351	763	240	409	1,143
1986	232	471	883	249	537	557
1987	252	576	1,074	152	544	708
1988	284	462	1,159	220	664	847
1989	236	597	1,117	215	902	1,190

— Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers*, and unpublished tabulations; March Current Population Survey.

Table 2:20-1 Number of degrees conferred at institutions of higher education, by level of degree: Academic years ending 1971–1989

Year	Total	Associate degrees	Bachelor's degrees	Master's degrees	Doctor's degrees	First-professional degrees*
1971	1,392,902	252,610	839,730	230,509	32,107	37,946
1972	1,507,799	292,119	887,273	251,633	33,363	43,411
1973	1,586,702	316,174	922,362	263,371	34,777	50,018
1974	1,654,365	343,924	945,776	277,033	33,816	53,816
1975	1,665,553	360,171	922,933	292,450	34,083	55,916
1976	1,725,684	391,454	925,746	311,771	34,064	62,649
1977	1,740,681	406,377	919,549	317,164	33,232	64,359
1978	1,743,782	412,246	921,204	311,620	32,131	66,581
1979	1,726,749	402,702	921,390	301,079	32,730	68,848
1980	1,731,154	400,910	929,417	298,081	32,615	70,131
1981	1,752,170	416,377	935,140	295,739	32,958	71,956
1982	1,787,798	434,515	952,998	295,546	32,707	72,032
1983	1,821,783	456,441	969,510	289,921	32,775	73,136
1984	1,818,604	452,416	974,309	284,263	33,209	74,407
1985	1,828,446	454,712	979,477	286,251	32,943	75,063
1986	1,830,000	446,047	987,823	288,567	33,653	73,910
1987	1,824,903	437,137	991,339	289,557	34,120	72,750
1988	1,832,886	435,537	993,362	298,733	34,839	70,415
1989	1,869,156	435,210	1,017,667	309,762	35,759	70,758

* The National Center for Education Statistics recognizes 10 first-professional degree fields: chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:20-2 Percent change in the number of degrees conferred at institutions of higher education since 1971, by level of degree: Academic years ending 1972–1989

Year	Total	Associate degrees	Bachelor's degrees	Master's degrees	Doctor's degrees	First-professional degrees*
1972	8.2	15.6	5.7	9.2	3.9	14.4
1973	13.9	25.2	9.8	14.3	8.3	31.8
1974	18.8	36.1	12.6	20.2	5.3	41.8
1975	19.6	42.6	9.9	26.9	6.2	47.4
1976	23.9	55.0	10.2	35.3	6.1	65.1
1977	25.0	60.9	9.5	37.6	3.5	69.6
1978	25.2	63.2	9.7	35.2	0.1	75.5
1979	24.0	59.4	9.7	30.6	1.9	81.4
1980	24.3	58.7	10.7	29.3	1.6	84.8
1981	25.8	64.8	11.4	28.3	2.7	89.6
1982	28.4	72.0	13.5	28.2	1.9	89.8
1983	30.8	80.7	15.5	25.8	2.1	92.7
1984	30.6	79.1	16.0	23.3	3.4	96.1
1985	31.3	80.0	16.6	24.2	2.6	97.8
1986	31.4	76.6	17.6	25.2	4.8	94.8
1987	31.0	73.0	18.1	25.6	6.3	91.7
1988	31.6	72.4	18.3	29.6	8.5	85.6
1989	34.2	72.3	21.2	34.4	11.4	86.5

*See table 2:20-1 for definition.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:20-3 Number and percent change since 1971 in number of high school and college graduates, by age: 1971–1989

Year	Number (in thousands)		Percent change since 1971	
	High school graduates aged 20–24	College graduates aged 25–34	High school graduates aged 20–24	College graduates aged 25–34
1971	13,511	4,169	—	—
1972	14,256	4,734	5.5	13.6
1973	14,713	5,047	8.9	21.1
1974	14,932	5,785	10.5	38.8
1975	15,468	6,443	14.5	54.5
1976	15,825	7,041	17.1	68.9
1977	16,102	7,676	19.2	84.1
1978	16,403	7,821	21.4	87.6
1979	16,754	8,096	24.0	94.2
1980	17,333	8,836	28.3	111.9
1981	17,475	8,782	29.3	110.7
1982	17,667	9,200	30.8	120.7
1983	17,775	9,605	31.6	130.4
1984	17,750	9,771	31.4	134.4
1985	17,110	9,737	26.6	133.6
1986	16,835	10,094	24.6	142.1
1987	16,389	10,196	21.3	144.6
1988	16,042	10,476	18.7	151.3
1989	15,522	10,454	14.9	150.8

—Not applicable.

NOTE: High school graduates are defined here as those who have completed 12 or more years of schooling, and college graduates are defined as those who have completed 16 or more years.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March....," various years and unpublished tabulations.

Table 2:20-4 Standard errors for estimated numbers and percentages in table 2:20-3

	Number (in thousands)		Percent change since 1971	
Year	High school graduates aged 20–24	College graduates aged 25–34	High school graduates aged 20–24	College graduates aged 25–34
1971	71	84	—	—
1972	70	88	.8	3.1
1973	70	91	.8	3.3
1974	70	96	.8	3.6
1975	70	101	.8	3.9
1976	71	105	.8	4.2
1977	73	108	.8	4.5
1978	73	110	.8	4.6
1979	73	111	.8	4.7
1980	81	124	.9	5.2
1981	82	125	.9	5.2
1982	81	127	.9	5.4
1983	80	130	.9	5.6
1984	80	131	.9	5.7
1985	81	131	.9	5.6
1986	78	133	.9	5.8
1987	76	134	.9	5.9
1988	74	135	.8	6.0
1989	74	135	.8	6.0

—Not applicable.

NOTE: High school graduates are defined here as those who have completed 12 or more years of schooling, and college graduates are defined as those who have completed 16 or more years.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March....," various years and unpublished tabulations.

Table 2:21-1 Percent of graduate degrees earned by foreign students, by degree level and field of study: Selected academic years ending 1977–1989

Degree level and field of study	1977	1979	1981	1985	1987	1989
Master's degrees						
All fields	5.5	6.5	7.5	9.6	10.3	11.0
Humanities and social/behavioral sciences	5.6	6.2	7.8	9.9	10.4	11.2
Humanities	4.6	5.0	6.7	8.8	9.3	10.4
Social and behavioral sciences	6.9	7.9	9.4	11.4	12.2	12.5
Natural and computer sciences and engineering	15.6	18.1	20.7	23.7	24.1	26.9
Natural sciences	9.3	10.8	11.8	16.7	18.2	21.1
Life sciences	6.7	6.8	6.2	9.5	10.8	13.3
Physical sciences	12.4	13.1	15.0	19.4	19.9	22.8
Mathematics	10.0	15.6	18.1	24.2	26.5	29.8
Computer sciences and engineering	21.0	24.2	26.7	27.2	26.7	29.3
Computer and information sciences	13.4	15.6	21.8	24.6	26.1	28.8
Engineering	22.3	25.9	27.9	28.0	27.0	29.5
Technical/professional	3.9	4.7	5.3	6.6	7.2	7.4
Education	1.9	2.5	2.7	3.8	3.2	3.1
Business and other technical/professional	6.5	7.1	7.5	8.3	9.6	10.1
Business and management	8.2	8.8	8.8	8.7	10.7	10.8
Other technical/professional	5.0	5.6	6.2	7.7	8.4	9.3
Doctor's degrees						
All fields	11.3	12.0	12.8	16.5	19.4	21.5
Humanities and social/behavioral sciences	7.4	7.8	8.4	11.0	11.8	12.9
Humanities	6.4	7.2	8.3	9.6	11.5	11.7
Social and behavioral sciences	8.1	8.4	8.4	12.1	12.0	13.7
Natural and computer sciences and engineering	18.6	18.9	19.3	25.6	31.1	33.8
Natural sciences	13.7	13.5	13.1	17.6	23.3	25.6
Life sciences	10	9.7	7.8	11.2	15.4	16.0
Physical sciences	15.9	15.7	16.9	20.2	26.6	29.4
Mathematics	19.4	22.2	23.8	36.3	44.0	47.6
Computer sciences and engineering	32.0	33.6	36.0	43.0	45.5	47.1
Computer and information sciences	20.8	20.3	20.6	29.2	33.7	38.1
Engineering	32.9	34.8	37.5	44.0	46.7	48.2
Technical/professional	8.7	10.0	11.1	12.5	14.0	15.4
Education	4.8	6.4	7.5	8.5	8.5	8.4
Business and other technical/professional	18.4	17.8	18.6	18.9	22.3	24.8
Business and management	18.5	18.9	19.1	23.9	28.8	27.0
Other technical/professional	18.3	17.4	18.5	17.7	20.3	24.1

NOTE: Foreign students are non-United States citizens on temporary visas. American students include non-United States citizens with permanent U.S. visas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:21-2 Number of graduate degrees earned by foreign and American students in 1989 and percent change between 1977 and 1989, by degree level and field of study

Degree level and field of study	Number of degrees earned in 1989		Percent change in number of degrees, 1977–1989	
	Foreign students	American students	Foreign students	American students
Master's degrees				
All fields	34,072	274,800	96.5	-7.9
Humanities and social/behavioral sciences	5,359	42,337	74.2	-17.8
Humanities	2,937	25,326	105.5	-13.7
Social and behavioral sciences	2,422	17,011	47.1	-23.1
Natural and computer sciences and engineering	12,927	35,100	138.9	19.9
Natural sciences	2,979	11,115	98.2	-23.8
Life sciences	654	4,279	37.1	-35.5
Physical sciences	1,306	4,431	99.1	-4.2
Mathematics	1,019	2,405	175.4	-27.7
Computer sciences and engineering	9,948	23,985	154.6	63.3
Computer and information sciences	2,702	6,690	638.3	183.7
Engineering	7,246	17,295	104.6	40.3
Technical/professional	15,786	197,363	78.3	-9.3
Education	2,532	79,706	5.9	-35.7
Business and other technical/professional	13,254	117,657	105.1	25.7
Business and management	7,892	65,262	108.7	54.0
Other technical/professional	5,362	52,395	100.1	2.3
Doctor's degrees				
All fields	7,680	28,012	105.0	-4.6
Humanities and social/behavioral sciences	1,363	9,221	59.0	-14.4
Humanities	522	3,921	60.1	-17.7
Social and behavioral sciences	841	5,300	58.4	-11.9
Natural and computer sciences and engineering	4,508	8,830	134.1	4.8
Natural sciences	2,119	6,148	104.9	-5.8
Life sciences	567	2,966	65.8	-2.9
Physical sciences	1,132	2,720	112.8	-3.1
Mathematics	420	462	162.5	-30.3
Computer sciences and engineering	2,389	2,682	167.8	41.3
Computer and information sciences	205	333	355.6	94.7
Engineering	2,184	2,349	157.9	36.0
Technical/professional	1,809	9,961	87.7	-2.0
Education	573	6,210	50.4	-18.0
Business and other technical/professional	1,236	3,751	112.0	44.8
Business and management	311	839	93.2	18.7
Other technical/professional	925	2,912	119.2	54.6

NOTE: Foreign students are non-United States citizens on temporary visas. American students include non-United States citizens with permananent U.S. visas. Because racial/citizenship data were not imputed for some institutions that did not report such data, the sum of degrees reported here is slightly lower than the total actually conferred.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred.

Table 2:21-3 Graduate degrees earned by foreign and American students, by degree level: Selected academic years ending 1977–1989

Degree level	1977	1979	1981	1985	1987	1989
			Number earned			
Foreign students						
Bachelor's	15,703	17,831	22,589	29,217	29,306	26,972
Master's	17,338	19,405	22,057	26,952	29,898	34,072
Doctor's	3,747	3,915	4,203	5,317	6,587	7,680
American students						
Bachelor's	899,428	898,516	912,211	939,094	962,314	988,267
Master's	298,322	280,482	272,126	253,469	259,443	274,800
Doctor's	29,364	28,749	28,636	26,990	27,446	28,012
			Percent change in number earned since 1977			
Foreign students						
Bachelor's	—	13.6	43.9	86.1	86.6	71.8
Master's	—	11.9	27.2	55.5	72.4	96.5
Doctor's	—	4.5	12.2	41.9	75.8	105.0
American students						
Bachelor's	—	-0.1	1.4	4.4	7.0	9.9
Master's	—	-6.0	-8.8	-15.0	-13.0	-7.9
Doctor's	—	-2.1	-2.5	-8.1	-6.5	-4.6
			Percent earned by foreign students			
Bachelor's	1.7	1.9	2.4	3.0	3.0	2.7
Master's	5.5	6.5	7.5	9.6	10.3	11.0
Doctor's	11.3	12.0	12.8	16.5	19.4	21.5

— Not applicable.

NOTE: Foreign students are non-United States citizens on temporary visas. American students include non-United States citizens with permananent U.S. visas. Because racial/citizenship data were not imputed for some institutions that did not report such data, the sum of degrees reported here is slightly lower than the total actually conferred.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of degrees conferred, various years.

Table 2:21-4 College graduates aged 25–34: Selected years ending 1977–1989

Year	Number (thousands)	Percent change since 1977
1977	7,676	—
1979	8,096	5.5
1981	8,782	14.4
1983	9,605	25.1
1985	9,737	26.8
1987	10,196	32.8
1989	10,454	36.2

NOTE: College graduates are defined here as those who have completed 16 or more years of schooling.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, SeriesP-20, "Educational Attainment in the United States: March....," various years and unpublished tabulations.

Table 2:21-5 Percent of new foreign doctorate recipients who have definite postgraduation plans in the United States, by type of plan and major field: Academic years ending 1977–1989

Year of doctorate	Total [1]	Employment	Post-doctoral study
		Natural and computer sciences and engineering [2]	
1977	28.0	11.8	15.9
1978	31.5	12.4	19.1
1979	33.0	14.7	18.1
1980	34.2	15.8	18.1
1981	33.2	18.2	14.8
1982	32.7	17.9	14.6
1983	31.0	16.0	15.0
1984	33.3	15.6	17.6
1985	33.2	15.3	17.7
1986	37.1	15.5	21.5
1987	35.9	13.2	22.5
1989	38.7	14.5	24.0
		All other fields	
1977	12.2	10.3	1.5
1978	14.4	12.6	1.7
1979	13.1	11.0	1.9
1980	11.8	8.9	2.8
1981	13.8	10.8	2.8
1982	12.0	9.6	2.4
1983	13.0	10.8	2.3
1984	12.7	10.1	2.5
1985	15.7	13.1	2.5
1986	18.4	15.0	3.2
1987	20.8	17.0	3.7
1989	21.7	17.8	3.6

[1] Includes a small proportion (less than 1 percent) whose plans are unknown.

[2] Physical and life sciences, mathematics, computer and information sciences, and engineering.

NOTE: Foreign students are non-United States citizens holding temporary U.S. visas. Data for 1987 differ slightly from previously published figures.

SOURCE: National Science Foundation, *Science and Engineering Doctorates: 1960–88*, and unpublished tabulations from National Research Council, Survey of Earned Doctorates.

Table 2:21-6 Standard errors for estimated numbers and percentages in table 2:21-4

Year	Number (thousands)	Percent change since 1977
1977	108	—
1979	111	2.1
1981	125	2.3
1983	130	2.4
1985	131	2.5
1987	134	2.6
1989	135	2.6

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, SeriesP-20, "Educational Attainment in the United States: March....," various years and unpublished tabulations.

Table 2:22-1 Research and development (R&D) expenditures at doctorate-granting institutions and national research and development expenditures: Fiscal years 1972–1989

	R&D expenditures at doctorate-granting institutions				National R&D expenditures			
Fiscal year	Expenditures in constant (1990) dollars (millions)*	As percent of national R&D expenditures	Annual percent change	Percent change since 1972	Expenditures in constant (1990) dollars (millions)*	As percent of GNP	Annual percent change	Percent change since 1972
1972	$7,269.3	9.0	—	—	$80,590	2.4	—	—
1973	7,468.4	9.1	2.7	2.7	81,666	2.3	1.3	1.3
1974	7,198.2	9.0	-3.6	-1.0	80,088	2.2	-1.9	-0.6
1975	7,408.7	9.5	2.9	1.9	78,146	2.2	-2.4	-3.0
1976	7,626.7	9.4	2.9	4.9	81,375	2.2	4.1	1.0
1977	7,798.0	9.3	2.2	7.3	83,659	2.2	2.8	3.8
1978	8,275.6	9.4	6.1	13.8	87,724	2.1	4.9	8.9
1979	8,826.3	9.6	6.7	21.4	91,963	2.2	4.8	14.1
1980	9,152.9	9.5	3.7	25.9	96,100	2.3	4.5	19.2
1981	9,405.9	9.4	2.8	29.4	100,591	2.4	4.7	24.8
1982	9,484.2	9.0	0.8	30.5	105,281	2.5	4.7	30.6
1983	9,823.0	8.7	3.6	35.1	112,887	2.6	7.2	40.1
1984	10,366.1	8.4	5.5	42.6	123,555	2.7	9.4	53.3
1985	11,326.1	8.4	9.3	55.8	134,976	2.8	9.2	67.5
1986	12,443.2	9.0	9.9	71.2	138,490	2.8	2.6	71.8
1987	13,449.2	9.4	8.1	85.0	142,715	2.8	3.1	77.1
1988	14,417.5	9.8	7.2	98.3	146,714	2.8	2.8	82.0
1989	15,361.9	10.4	6.6	111.3	147,959	2.7	0.8	83.6

— Not applicable.

* Based on estimated 1990 GNP implicit price deflator.

NOTE: R&D expenditures include separately budgeted expenditures for basic research and for applied research and development. They do not include expenditures by university-administered, federally funded research and development centers (FFRDC's). R&D expenditures at doctorate-granting institutions made up 98 percent of total academic R&D expenditures in 1989. Data for 1981–1987 are revised from previously published figures.

SOURCE: National Science Foundation, *Selected Data on Academic Science/Engineering R&D Expenditures FY 1989* and *National Patterns of R&D Resources: 1990* (based on surveys of R&D expenditures in government, industry, higher education institutions, and other sectors, various years).

Table 2:22-2 Percentage distribution of research and development expenditures at doctorate-granting institutions, by source of funds: Fiscal years 1972–1989

Year	Total	Federal govern-ment	State/ local govern-ment	Industry	Institu-tional funds	Other
1972	100.0	68.3	10.2	2.8	11.6	7.1
1973	100.0	69.0	10.0	2.9	11.1	7.0
1974	100.0	67.4	10.0	3.2	12.3	7.2
1975	100.0	67.1	9.7	3.3	12.3	7.6
1976	100.0	67.4	9.7	3.3	11.9	7.6
1977	100.0	67.1	9.2	3.4	12.6	7.7
1978	100.0	66.2	8.9	3.7	13.4	7.8
1979	100.0	67.0	8.8	3.6	13.6	7.0
1980	100.0	67.6	8.1	3.9	13.8	6.7
1981	100.0	66.8	8.0	4.3	14.6	6.3
1982	100.0	65.1	8.4	4.6	15.3	6.7
1983	100.0	63.2	7.9	4.9	16.6	7.3
1984	100.0	62.9	8.0	5.5	16.5	7.1
1985	100.0	62.5	7.8	5.8	16.8	7.2
1986	100.0	61.3	8.4	6.4	17.2	6.7
1987	100.0	60.3	8.4	6.5	18.0	6.8
1988	100.0	60.7	8.2	6.4	17.6	7.0
1989	100.0	59.9	8.2	6.5	18.2	7.2

NOTE: R&D expenditures include separately budgeted expenditures for basic research and for applied research and development. They do not include expenditures by university-administered federally funded research and development centers (FFRDC's). R&D expenditures at doctorate-granting institutions made up 98 percent of total academic R&D expenditures in 1989. Detail may not add to totals due to rounding. Data for 1981–1987 are revised from previously published figures.

SOURCE: National Science Foundation, *Selected Data on Academic Science/Engineering R&D Expenditures FY 1989* (based on Scientific and Engineering Expenditures at Universities and Colleges survey, various years).

Table 2:22-3 Percent change since 1972 in research and development expenditures in constant 1990 dollars at doctorate-granting institutions, by source of funds: Fiscal years 1973–1989

Fiscal year	Total	Federal government	State/local government	Industry	Institutional funds	Other
1973	2.7	3.8	1.6	5.2	-2.1	1.4
1974	-1.0	-2.3	-2.8	10.6	4.8	0.7
1975	1.9	0.1	-2.3	18.3	7.8	8.9
1976	4.9	3.5	0.6	21.2	8.0	12.7
1977	7.3	5.4	-3.2	27.8	16.6	16.6
1978	13.8	10.3	0.3	46.7	31.9	24.8
1979	21.4	19.2	4.6	54.6	42.2	20.1
1980	25.9	24.6	0.3	73.7	49.6	17.5
1981	29.4	26.5	1.6	94.7	63.1	15.9
1982	30.5	24.3	7.3	110.1	71.8	23.9
1983	35.1	25.1	5.2	133.2	93.2	40.3
1984	42.6	31.3	12.1	175.5	102.4	44.0
1985	55.8	42.5	18.9	215.8	125.9	58.3
1986	71.2	53.6	40.9	284.6	154.2	62.8
1987	85.0	63.3	52.8	321.3	186.9	78.9
1988	98.3	76.3	59.9	349.5	201.6	96.1
1989	111.3	85.2	70.4	386.0	230.9	115.9

NOTE: R&D expenditures include separately budgeted expenditures for basic research and for applied research and development. They do not include expenditures by university-administered federally funded research and development centers (FFRDC's). R&D expenditures at doctorate-granting institutions made up 98 percent of total academic R&D expenditures in 1989. Constant dollar data are based on the GNP implicit price deflator.

SOURCE: National Science Foundation, *Selected Data on Academic Science/Engineering R&D Expenditures FY1989* (based on Scientific and Engineering Expenditures at Universities and Colleges survey, various years).

Indicator 2:23

Table 2:23-1 Total and full-time-equivalent (FTE) enrollment, by type and control of institution: Fall 1972–fall 1989

Fall of year	All institutions	Public 4-year	Public 2-year	Private 4-year	Private 2-year
			Total enrollment		
1972	9,214,860	4,429,696	2,640,939	2,028,978	115,247
1973	9,602,123	4,529,895	2,889,621	2,062,179	120,428
1974	10,223,729	4,703,018	3,285,482	2,116,717	118,512
1975	11,184,859	4,998,142	3,836,366	2,216,598	133,753
1976	11,012,137	4,901,691	3,751,786	2,227,125	131,535
1977	11,285,787	4,945,224	3,901,769	2,297,621	141,173
1978	11,260,092	4,912,203	3,873,690	2,319,748	154,451
1979	11,569,899	4,980,012	4,056,810	2,373,221	159,856
1980	12,096,895	5,128,612	4,328,782	2,441,996	197,505
1981	12,371,672	5,166,324	4,480,708	2,489,137	235,503
1982	12,425,780	5,176,434	4,519,653	2,477,640	252,053
1983	12,464,661	5,223,404	4,459,330	2,517,791	264,136
1984	12,241,940	5,198,273	4,279,097	2,512,894	251,676
1985	12,247,055	5,209,540	4,269,733	2,506,438	261,344
1986	12,503,511	5,300,202	4,413,691	2,523,761	265,857
1987	12,766,642	5,432,200	4,541,054	2,558,220	235,168
1988	13,055,337	5,545,901	4,615,487	2,634,281	259,668
1989*	13,457,855	5,694,202	4,820,771	2,680,192	262,690
			Full-time-equivalent (FTE) enrollment		
1972	7,253,739	3,706,239	1,746,609	1,700,582	100,309
1973	7,453,448	3,721,031	1,908,524	1,718,187	105,706
1974	7,805,453	3,847,550	2,097,254	1,758,699	101,950
1975	8,479,685	4,056,500	2,465,810	1,843,901	113,474
1976	8,312,502	3,998,450	2,351,453	1,849,551	113,048
1977	8,415,339	4,039,071	2,357,405	1,896,005	122,858
1978	8,348,482	3,996,126	2,283,073	1,936,447	132,836
1979	8,487,317	4,059,304	2,333,313	1,956,768	137,932
1980	8,819,013	4,158,267	2,484,027	2,003,105	173,614
1981	9,014,521	4,208,506	2,572,794	2,041,341	191,880
1982	9,091,648	4,220,648	2,629,941	2,028,275	212,784
1983	9,166,399	4,265,808	2,615,672	2,059,415	225,504
1984	8,951,695	4,237,895	2,446,769	2,054,816	212,215
1985	8,943,433	4,239,622	2,428,159	2,054,717	220,935
1986	9,064,168	4,295,495	2,482,551	2,064,829	221,293
1987	9,229,736	4,395,731	2,541,958	2,090,779	201,267
1988	9,466,878	4,505,501	2,591,571	2,159,770	210,036
1989*	9,733,727	4,619,374	2,717,565	2,184,121	212,667

*Preliminary.

NOTE: Large increases in private 2-year institutions in 1980 and 1981 reflect the addition of schools accredited by the National Association of Trade and Technical Schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, HEGIS/IPEDS surveys of fall enrollment.

Table 2:23-2 Percent change since 1972 in total enrollment, by type and control of institution: Fall 1973–fall 1989

Fall of year	All institutions	Public 4-year	Public 2-year	Private 4-year
1973	4.2	2.3	9.4	1.6
1974	10.9	6.2	24.4	4.3
1975	21.4	12.8	45.3	9.2
1976	19.5	10.7	42.1	9.8
1977	22.5	11.6	47.7	13.2
1978	22.2	10.9	46.7	14.3
1979	25.6	12.4	53.6	17.0
1980	31.3	15.8	63.9	20.4
1981	34.3	16.6	69.7	22.7
1982	34.8	16.9	71.1	22.1
1983	35.3	17.9	68.9	24.1
1984	32.8	17.4	62.0	23.9
1985	32.9	17.6	61.7	23.5
1986	35.7	19.7	67.1	24.4
1987	38.5	22.6	71.9	26.1
1988	41.7	25.2	74.8	29.8
1989	46.0	28.5	82.5	32.1

NOTE: Private 2-year institutions are not shown because changes may be misleading due to a change in the survey universe in 1980 and 1981 to include schools accredited by the National Association of Trade and Technical Schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of fall enrollment.

Table 2:23-3 Percent of total enrollment, by type and control of institution: Fall 1972–fall 1989

Fall of year	Total	Public 4-year	Public 2-year	Private 4-year	Private 2-year
1972	100.0	48.1	28.7	22.0	1.3
1973	100.0	47.2	30.1	21.5	1.3
1974	100.0	46.0	32.1	20.7	1.2
1975	100.0	44.7	34.3	19.8	1.2
1976	100.0	44.5	34.1	20.2	1.2
1977	100.0	43.8	34.6	20.4	1.3
1978	100.0	43.6	34.4	20.6	1.4
1979	100.0	43.0	35.1	20.5	1.4
1980	100.0	42.4	35.8	20.2	1.6
1981	100.0	41.8	36.2	20.1	1.9
1982	100.0	41.7	36.4	19.9	2.0
1983	100.0	41.9	35.8	20.2	2.1
1984	100.0	42.5	35.0	20.5	2.1
1985	100.0	42.5	34.9	20.5	2.1
1986	100.0	42.4	35.3	20.2	2.1
1987	100.0	42.5	35.6	20.0	1.8
1988	100.0	42.5	35.4	20.2	2.0
1989	100.0	42.3	35.8	19.9	2.0

NOTE: Increases in private 2-year institutions in 1980 and 1981 reflect the addition of schools accredited by the National Association of Trade and Technical Schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of fall enrollment.

Table 2:23-4 High school graduates, by age: 1972–1989

Year	Number (in thousands)		Percent change since 1972	
	Ages 20-24	Ages 25-34	Ages 20-24	Ages 25-34
1972	14,256	20,459	—	—
1973	14,713	21,695	3.2	6.0
1974	14,932	23,195	4.7	13.4
1975	15,468	24,390	8.5	19.2
1976	15,825	25,774	11.0	26.0
1977	16,102	26,919	12.9	31.6
1978	16,403	27,822	15.1	36.0
1979	16,754	28,849	17.5	41.0
1980	17,333	31,259	21.6	52.8
1981	17,475	32,399	22.6	58.4
1982	17,667	33,397	23.9	63.2
1983	17,775	33,976	24.7	66.1
1984	17,750	34,757	24.5	69.9
1985	17,110	35,465	20.0	73.3
1986	16,835	36,510	18.1	78.5
1987	16,389	36,891	15.0	80.3
1988	16,042	37,133	12.5	81.5
1989	15,522	37,427	8.9	82.9

— Not applicable.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "Educational Attainment in the United States: March....," various years and unpublished tabulations.

Indicator 2:24

Table 2:24-1 Total enrollment in institutions of higher education, by control and type of institution and race/ethnicity of student: Fall 1976–1988 (selected years)

(In thousands)

Control and type of institution, and race/ethnicity of student	1976	1978	1980	1982	1984	1986	1988
All institutions	10,986	11,231	12,087	12,388	12,235	12,504	13,043
White, non-Hispanic	9,076	9,194	9,833	9,997	9,815	9,921	10,283
Total minority	1,691	1,785	1,949	2,059	2,085	2,238	2,399
Black, non-Hispanic	1,033	1,054	1,107	1,101	1,076	1,082	1,130
Hispanic	384	417	472	519	535	618	680
Asian or Pacific Islander	198	235	286	351	390	448	497
American Indian/Alaskan Native	76	78	84	88	84	90	93
Nonresident alien	219	253	305	331	335	345	361
Public institutions	8,641	8,770	9,456	9,695	9,458	9,714	10,156
White, non-Hispanic	7,095	7,136	7,656	7,785	7,543	7,654	7,964
Total minority	1,401	1,466	1,596	1,692	1,696	1,836	1,955
Black, non-Hispanic	831	840	876	873	844	854	881
Hispanic	337	363	406	446	456	532	587
Asian or Pacific Islander	166	195	240	296	323	371	406
American Indian/Alaskan Native	68	68	74	77	72	79	81
Nonresident alien	145	167	204	219	219	224	238
Private institutions	2,345	2,461	2,630	2,693	2,777	2,790	2,887
White, non-Hispanic	1,982	2,058	2,177	2,212	2,272	2,267	2,319
Total minority	290	319	353	368	389	403	444
Black, non-Hispanic	202	215	231	228	232	228	248
Hispanic	47	55	66	74	79	86	93
Asian or Pacific Islander	32	40	47	55	67	77	91
American Indian/Alaskan Native	9	9	10	10	11	11	11
Nonresident alien	73	85	101	113	116	120	123

Table 2:24-1 Total enrollment in institutions of higher education, by control and type of institution and race/ethnicity of student: Fall 1976–1988 (selected years)—Continued

(In thousands)

Control and type of institution, and race/ethnicity of student	1976	1978	1980	1982	1984	1986	1988
4-year institutions	7,107	7,203	7,565	7,648	7,708	7,824	8,175
White, non-Hispanic	5,999	6,027	6,275	6,306	6,301	6,337	6,582
Total minority	931	975	1,050	1,073	1,124	1,195	1,292
Black, non-Hispanic	604	612	634	612	617	615	656
Hispanic	174	190	217	229	246	278	296
Asian or Pacific Islander	119	138	162	193	223	262	297
American Indian/Alaskan Native	35	35	37	39	38	40	42
Nonresident alien	177	201	241	270	282	292	302
2-year institutions	3,879	4,028	4,521	4,740	4,527	4,680	4,868
White, non-Hispanic	3,077	3,167	3,558	3,692	3,514	3,584	3,702
Total minority	760	810	899	987	961	1,043	1,107
Black, non-Hispanic	429	443	472	489	459	467	473
Hispanic	210	227	255	291	289	340	384
Asian or Pacific Islander	79	97	124	158	167	186	199
American Indian/Alaskan Native	41	43	47	49	46	51	50
Nonresident alien	42	52	64	61	53	53	60

NOTE: Because of underreporting and nonreporting of racial/ethnic data, figures are slightly lower than corresponding data in other tables. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of fall enrollment, various years.

Table 2:24-2 Percentage distribution of total enrollment in institutions of higher education, by control and type of institution and race/ethnicity of student: Fall 1976–1988 (selected years)

Control and type of institution, and race/ethnicity of student	1976	1978	1980	1982	1984	1986	1988
All institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White, non-Hispanic	82.6	81.9	81.4	80.7	80.2	79.3	78.8
Total minority	15.4	15.9	16.1	16.6	17.0	17.9	18.4
Black, non-Hispanic	9.4	9.4	9.2	8.9	8.8	8.7	8.7
Hispanic	3.5	3.7	3.9	4.2	4.4	4.9	5.2
Asian or Pacific Islander	1.8	2.1	2.4	2.8	3.2	3.6	3.8
American Indian/Alaskan Native	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Nonresident alien	2.0	2.2	2.5	2.7	2.7	2.8	2.8
Public institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White, non-Hispanic	82.1	81.4	81.0	80.3	79.8	78.8	78.4
Total minority	16.2	16.7	16.9	17.4	17.9	18.9	19.2
Black, non-Hispanic	9.6	9.6	9.3	9.0	8.9	8.8	8.7
Hispanic	3.9	4.1	4.3	4.6	4.8	5.5	5.8
Asian or Pacific Islander	1.9	2.2	2.5	3.0	3.4	3.8	4.0
American Indian/Alaskan Native	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Nonresident alien	1.7	1.9	2.2	2.3	2.3	2.3	2.3
Private institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White, non-Hispanic	84.5	83.6	82.8	82.2	81.8	81.3	80.3
Total minority	12.4	12.9	13.4	13.7	14.0	14.4	15.4
Black, non-Hispanic	8.6	8.7	8.8	8.5	8.3	8.2	8.6
Hispanic	2.0	2.2	2.5	2.7	2.8	3.1	3.2
Asian or Pacific Islander	1.4	1.6	1.8	2.1	2.4	2.8	3.2
American Indian/Alaskan Native	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Nonresident alien	3.1	3.4	3.8	4.2	4.2	4.3	4.3
4-year institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White, non-Hispanic	84.4	83.7	82.9	82.4	81.7	81.0	80.5
Total minority	13.1	13.5	13.9	14.0	14.6	15.3	15.8
Black, non-Hispanic	8.5	8.5	8.4	8.0	8.0	7.9	8.0
Hispanic	2.4	2.6	2.9	3.0	3.2	3.6	3.6
Asian or Pacific Islander	1.7	1.9	2.1	2.5	2.9	3.3	3.6
American Indian/Alaskan Native	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Nonresident alien	2.5	2.8	3.2	3.5	3.7	3.7	3.7

Table 2:24-2 Percentage distribution of total enrollment in institutions of higher education, by control and type of institution and race/ethnicity of student: Fall 1976–1988 (selected years)—Continued

Control and type of institution, and race/ethnicity of student	1976	1978	1980	1982	1984	1986	1988
2-year institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White, non-Hispanic	79.3	78.6	78.7	77.9	77.6	76.6	76.0
Total minority	19.6	20.1	19.9	20.8	21.2	22.3	22.7
Black, non-Hispanic	11.1	11.0	10.4	10.3	10.1	10.0	9.7
Hispanic	5.4	5.6	5.6	6.1	6.4	7.3	7.9
Asian or Pacific Islander	2.0	2.4	2.8	3.3	3.7	4.0	4.1
American Indian/Alaskan Native	1.1	1.1	1.0	1.0	1.0	1.1	1.0
Nonresident alien	1.1	1.3	1.4	1.3	1.2	1.1	1.2

NOTE: Because of underreporting and nonreporting of racial/ethnic data, figures are slightly lower than corresponding data in other tables. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of fall enrollment, various years.

Indicator 2:25

Table 2:25-1 Age distribution of *all* undergraduate students 16 years old and over, by type of college: 1976 and 1978–1989

(Percent)

Year	Total	16-19 years old	20-21 years old	22-24 years old	25-29 years old	30-34 years old	35 yrs old and over
				All colleges			
1976	100.0	35.8	26.3	13.6	10.8	5.6	7.9
1978	100.0	35.5	25.1	13.8	10.5	6.4	8.7
1979	100.0	34.3	25.2	14.2	10.5	6.2	9.7
1981	100.0	32.9	25.3	14.7	10.5	7.7	8.8
1982	100.0	32.0	26.8	15.4	11.2	6.4	8.1
1983	100.0	32.3	24.9	14.9	12.0	7.0	8.9
1984	100.0	31.5	26.0	15.7	11.6	6.9	8.3
1985	100.0	31.3	25.7	14.7	11.9	6.9	9.5
1986	100.0	31.4	22.9	15.8	11.7	7.6	10.6
1987	100.0	31.9	25.1	14.7	10.7	7.2	10.4
1988	100.0	30.5	24.9	15.1	10.2	7.4	11.9
1989	100.0	30.5	23.7	15.6	11.0	7.1	12.2
				4-year colleges			
1976	100.0	36.9	32.2	14.1	8.2	3.9	4.7
1978	100.0	35.7	30.9	14.4	8.8	4.8	5.4
1979	100.0	34.4	31.1	14.6	8.8	4.9	6.3
1980	100.0	33.6	32.8	14.9	8.7	4.7	5.2
1981	100.0	32.1	30.2	16.1	9.2	6.1	6.3
1982	100.0	31.9	32.6	16.1	9.1	4.6	5.7
1983	100.0	32.2	29.6	17.0	10.1	4.9	6.2
1984	100.0	31.0	31.1	16.9	10.0	5.1	5.9
1985	100.0	31.7	30.9	15.9	10.4	4.7	6.4
1986	100.0	31.7	27.6	17.7	9.3	6.5	7.1
1987	100.0	32.6	29.5	15.8	9.3	5.7	7.1
1988	100.0	31.0	29.2	16.3	9.2	5.4	8.9
1989	100.0	31.3	28.1	16.9	9.8	5.0	8.9
				2-year colleges			
1976	100.0	31.6	15.4	12.8	16.4	8.5	15.3
1978	100.0	33.1	14.6	13.4	13.8	9.1	16.1
1979	100.0	32.0	13.8	14.0	14.0	8.7	17.4
1980	100.0	34.6	14.5	13.4	13.7	9.4	14.4
1981	100.0	33.8	16.7	12.2	12.7	10.0	14.5
1982	100.0	31.4	17.4	14.2	14.7	9.1	13.2
1983	100.0	30.6	17.3	11.8	15.5	10.2	14.6
1985	100.0	28.9	16.8	12.1	14.9	10.7	16.6
1986	100.0	29.9	14.8	12.5	15.9	9.6	17.3
1987	100.0	30.5	17.1	12.5	13.3	10.1	16.6
1988	100.0	29.5	17.3	12.9	12.1	10.8	17.3
1989	100.0	28.9	15.4	12.9	13.3	10.9	18.6

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment...," various years; October Current Population Surveys.

Table 2:25-2 Age distribution of *full-time* undergraduate students 16 years old and over, by type of college: 1976 and 1978–1989

(Percent)

Year	Total	16-19 years old	20-21 years old	22-24 years old	25-29 years old	30-34 years old	35 yrs old and over
				All colleges			
1976	100.0	45.4	31.2	12.6	6.6	2.0	2.1
1978	100.0	45.6	30.5	13.0	6.0	2.8	2.1
1979	100.0	45.2	31.3	12.8	5.8	2.4	2.5
1980	100.0	44.8	32.7	12.6	5.4	2.4	2.2
1981	100.0	42.9	31.1	14.2	5.9	2.9	2.9
1982	100.0	41.3	32.9	14.1	6.8	2.7	2.3
1983	100.0	41.9	30.8	14.4	7.1	3.3	2.4
1984	100.0	40.7	31.8	15.3	7.1	2.8	2.4
1985	100.0	41.1	31.9	14.5	6.9	3.1	2.5
1986	100.0	42.1	28.9	15.5	6.9	3.0	3.5
1987	100.0	41.8	31.5	14.5	6.2	2.7	3.4
1988	100.0	40.3	31.3	14.9	6.2	3.3	3.9
1989	100.0	40.8	30.2	15.3	5.9	3.0	4.7
				4-year colleges			
1976	100.0	42.9	36.3	12.9	5.3	1.4	1.2
1978	100.0	41.7	34.9	13.9	5.5	2.5	1.5
1979	100.0	42.0	35.8	13.6	4.9	1.8	1.9
1980	100.0	40.1	38.3	13.4	5.0	1.8	1.5
1981	100.0	38.8	35.0	16.1	5.4	2.8	1.9
1982	100.0	38.0	37.5	15.1	5.6	2.0	1.6
1983	100.0	38.0	34.4	16.6	6.6	2.4	1.9
1984	100.0	37.2	36.1	16.8	6.1	2.2	1.6
1985	100.0	37.8	36.1	15.8	6.2	2.2	1.9
1986	100.0	38.9	32.7	17.1	6.2	2.4	2.6
1987	100.0	39.5	34.8	15.6	5.6	2.0	2.5
1988	100.0	37.3	34.8	16.2	6.0	2.7	2.9
1989	100.0	38.1	32.9	17.2	5.6	2.3	3.8
				2-year colleges			
1976	100.0	50.6	17.3	11.7	11.3	3.8	5.3
1978	100.0	55.4	17.4	11.2	8.1	3.9	4.1
1979	100.0	53.2	17.9	11.1	8.7	4.3	4.8
1980	100.0	56.5	18.3	10.2	6.8	3.8	4.3
1981	100.0	51.9	20.0	9.5	7.2	5.4	5.9
1982	100.0	49.8	21.5	12.1	10.4	1.9	4.3
1983	100.0	50.1	21.9	9.4	8.6	6.0	4.0
1984	100.0	48.7	19.8	11.4	10.1	4.8	5.3
1985	100.0	48.2	21.1	10.8	9.2	5.9	4.9
1986	100.0	50.7	18.3	10.6	9.0	4.8	6.7
1987	100.0	48.9	21.4	11.2	7.9	4.5	6.1
1988	100.0	48.7	21.6	11.0	6.9	5.1	6.7
1989	100.0	49.8	21.3	9.3	6.9	5.3	7.4

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment...," various years; October Current Population Surveys.

Table 2:25-3 Age distribution of *part-time* undergraduate students 16 years old and over, by type of college: 1976 and 1978–1989

(Percent)

Year	Total	16-19 years old	20-21 years old	22-24 years old	25-29 years old	30-34 years old	35 yrs old and over
				All colleges			
1976	100.0	10.3	13.2	16.3	21.8	15.1	23.3
1978	100.0	11.5	12.4	15.7	21.1	14.8	24.5
1979	100.0	9.5	11.2	17.3	21.2	14.7	26.1
1980	100.0	10.1	10.3	18.2	23.1	16.4	21.9
1981	100.0	9.8	11.8	15.8	21.3	18.7	22.6
1982	100.0	10.2	12.6	18.5	21.5	15.2	21.9
1983	100.0	10.2	11.3	16.1	23.2	15.4	23.8
1984	100.0	9.5	11.9	16.6	22.6	16.7	22.7
1985	100.0	8.8	11.5	15.0	23.4	15.6	25.7
1986	100.0	8.6	10.1	16.5	21.9	17.2	25.8
1987	100.0	11.6	12.0	14.9	20.0	16.6	24.9
1988	100.0	9.1	11.0	15.5	18.9	16.2	29.3
1989	100.0	7.7	9.6	16.1	21.9	15.9	28.8
				4-year colleges			
1976	100.0	9.2	13.0	19.6	21.7	15.5	20.9
1978	100.0	9.4	13.3	16.5	23.3	15.0	22.5
1979	100.0	5.0	12.6	18.4	23.8	16.7	23.5
1980	100.0	6.5	9.9	21.4	24.4	17.1	20.6
1981	100.0	5.3	11.2	16.4	24.2	19.4	23.4
1982	100.0	6.5	11.8	20.5	23.3	15.2	22.7
1983	100.0	7.8	9.5	18.5	24.8	15.6	23.8
1984	100.0	6.1	10.8	17.4	25.5	16.9	23.3
1985	100.0	6.0	9.2	16.3	28.1	15.3	25.1
1986	100.0	4.6	8.0	19.7	21.0	22.2	24.4
1987	100.0	8.3	10.4	16.6	22.6	18.6	23.5
1988	100.0	6.9	8.1	16.5	21.3	15.7	31.6
1989	100.0	4.8	9.1	15.9	25.8	15.7	28.7
				2-year colleges			
1976	100.0	10.5	13.4	13.9	22.1	13.8	26.3
1978	100.0	12.5	12.0	15.4	19.0	14.0	27.1
1979	100.0	12.3	10.1	16.7	19.0	12.8	29.2
1980	100.0	12.5	10.5	16.5	20.7	15.1	24.6
1981	100.0	13.6	13.0	15.3	18.9	15.1	24.0
1982	100.0	12.1	13.1	16.5	19.2	16.6	22.4
1983	100.0	11.3	12.8	14.2	22.2	14.4	25.1
1984	100.0	12.0	12.7	16.4	19.9	15.5	23.5
1985	100.0	10.6	12.7	13.4	20.2	15.4	27.6
1986	100.0	11.4	11.7	14.2	22.1	14.0	26.7
1987	100.0	14.1	13.3	13.7	18.1	15.0	25.9
1988	100.0	10.7	13.2	14.8	17.1	16.5	27.7
1989	100.0	9.9	9.9	16.1	19.1	16.1	28.8

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment...," various years; October Current Population Surveys.

Table 2:25-4 Standard errors for estimated percentages in table 2:25-1

Year	16-19 years old	20-21 years old	22-24 years old	25-29 years old	30-34 years old	35 yrs old and over
All colleges						
1976	0.7	0.7	0.5	0.5	0.3	0.4
1978	0.7	0.6	0.5	0.5	0.4	0.4
1979	0.7	0.6	0.5	0.5	0.4	0.4
1980	0.7	0.6	0.5	0.5	0.4	0.4
1981	0.7	0.6	0.5	0.4	0.4	0.4
1982	0.7	0.7	0.6	0.5	0.4	0.4
1983	0.7	0.7	0.5	0.5	0.4	0.4
1984	0.7	0.7	0.6	0.5	0.4	0.4
1985	0.7	0.7	0.5	0.5	0.4	0.4
1986	0.7	0.6	0.6	0.5	0.4	0.5
1987	0.7	0.6	0.5	0.5	0.4	0.5
1988	0.7	0.6	0.5	0.4	0.4	0.5
1989	0.7	0.7	0.6	0.5	0.4	0.5
4-year colleges						
1976	0.9	0.9	0.6	0.5	0.4	0.4
1978	0.9	0.9	0.7	0.5	0.4	0.4
1979	0.9	0.8	0.6	0.5	0.4	0.4
1980	0.9	0.9	0.7	0.5	0.4	0.4
1981	0.8	0.8	0.7	0.5	0.4	0.4
1982	0.9	0.9	0.7	0.6	0.4	0.5
1983	0.9	0.9	0.7	0.6	0.4	0.5
1984	0.9	0.9	0.7	0.6	0.4	0.5
1985	0.9	0.9	0.7	0.6	0.4	0.5
1986	0.9	0.9	0.7	0.6	0.5	0.5
1987	0.9	0.8	0.7	0.5	0.4	0.5
1988	0.9	0.8	0.7	0.5	0.4	0.5
1989	0.9	0.9	0.7	0.6	0.4	0.6
2-year colleges						
1976	1.2	1.0	0.9	1.0	0.7	0.9
1978	1.2	0.9	0.9	0.9	0.8	1.0
1979	1.2	0.9	0.9	0.9	0.7	1.0
1980	1.2	0.9	0.9	0.9	0.7	0.9
1981	1.2	0.9	0.8	0.8	0.7	0.9
1982	1.2	1.0	0.9	0.9	0.7	0.9
1983	1.2	1.0	0.8	0.9	0.8	0.9
1984	1.2	1.0	0.9	1.0	0.8	0.9
1985	1.2	1.0	0.9	0.9	0.8	1.0
1986	1.2	0.9	0.9	1.0	0.8	1.0
1987	1.2	0.9	0.8	0.9	0.8	0.9
1988	1.1	0.9	0.8	0.8	0.8	0.9
1989	1.2	1.0	0.9	0.9	0.9	1.1

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment...," various years; October Current Population Surveys.

Table 2:25-5 Standard errors for estimated percentages in table 2:25-2

Year	16-19 years old	20-21 years old	22-24 years old	25-29 years old	30-34 years old	35 yrs old and over
All colleges						
1976	0.9	0.8	0.6	0.4	0.2	0.3
1978	0.9	0.8	0.6	0.4	0.3	0.3
1979	0.9	0.8	0.6	0.4	0.3	0.3
1980	0.9	0.8	0.6	0.4	0.3	0.3
1981	0.8	0.8	0.6	0.4	0.3	0.3
1982	0.9	0.9	0.6	0.5	0.3	0.3
1983	0.9	0.8	0.6	0.5	0.3	0.3
1984	0.9	0.8	0.7	0.5	0.3	0.3
1985	0.9	0.8	0.6	0.5	0.3	0.3
1986	0.9	0.8	0.7	0.5	0.3	0.3
1987	0.9	0.8	0.6	0.4	0.3	0.3
1988	1.0	0.9	0.7	0.5	0.3	0.4
1989	1.0	0.9	0.7	0.5	0.3	0.4
4-year colleges						
1976	1.0	1.0	0.7	0.5	0.2	0.2
1978	1.0	1.0	0.7	0.5	0.3	0.3
1979	1.0	1.0	0.7	0.4	0.3	0.3
1980	1.0	1.0	0.7	0.5	0.3	0.3
1981	1.0	1.0	0.7	0.5	0.3	0.3
1982	1.0	1.0	0.8	0.5	0.3	0.3
1983	1.0	1.0	0.8	0.5	0.3	0.3
1984	1.0	1.0	0.8	0.5	0.3	0.3
1985	1.0	1.0	0.8	0.5	0.3	0.3
1986	1.0	1.0	0.8	0.5	0.3	0.3
1987	1.0	1.0	0.8	0.5	0.3	0.3
1988	1.1	1.1	0.8	0.5	0.4	0.4
1989	1.1	1.0	0.8	0.5	0.3	0.4
2-year colleges						
1976	1.8	1.4	1.2	1.2	0.7	0.8
1978	1.9	1.4	1.2	1.0	0.7	0.7
1979	1.9	1.4	1.2	1.1	0.8	0.8
1980	1.8	1.4	1.1	0.9	0.7	0.7
1981	1.7	1.3	1.0	0.9	0.8	0.8
1982	1.8	1.5	1.2	1.1	0.5	0.7
1983	1.8	1.5	1.1	1.0	0.9	0.7
1984	1.9	1.5	1.2	1.1	0.8	0.8
1985	1.9	1.5	1.2	1.1	0.9	0.8
1986	1.9	1.5	1.2	1.1	0.8	0.9
1987	1.8	1.5	1.2	1.0	0.8	0.9
1988	1.9	1.6	1.2	1.0	0.8	1.0
1989	2.0	1.6	1.2	1.0	0.9	1.0

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment...," various years; October Current Population Surveys.

Table 2:25-6 Standard errors for estimated percentages in table 2:25-3

Year	16-19 years old	20-21 years old	22-24 years old	25-29 years old	30-34 years old	35 yrs old and over
			All colleges			
1976	0.9	1.0	1.1	1.2	1.0	1.2
1978	0.9	0.9	1.0	1.1	1.0	1.2
1979	0.8	0.8	1.0	1.1	0.9	1.2
1980	0.8	0.8	1.0	1.1	1.0	1.1
1981	0.8	0.8	0.9	1.1	1.0	1.1
1982	0.8	0.9	1.1	1.1	1.0	1.2
1983	0.8	0.9	1.0	1.2	1.0	1.2
1984	0.8	0.9	1.1	1.2	1.1	1.2
1985	0.8	0.9	1.0	1.2	1.0	1.2
1986	0.7	0.8	1.0	1.1	1.0	1.2
1987	0.8	0.8	0.9	1.0	1.0	1.1
1988	0.8	0.9	1.0	1.1	1.1	1.3
1989	0.8	0.9	1.1	1.3	1.1	1.4
			4-year colleges			
1976	1.3	1.5	1.8	1.8	1.6	1.8
1978	1.3	1.5	1.6	1.8	1.6	1.8
1979	0.9	1.3	1.6	1.7	1.5	1.7
1980	1.1	1.3	1.7	1.8	1.6	1.7
1981	0.9	1.3	1.5	1.7	1.6	1.7
1982	1.1	1.4	1.8	1.9	1.6	1.8
1983	1.2	1.3	1.7	1.9	1.6	1.9
1984	1.0	1.3	1.6	1.9	1.6	1.8
1985	1.0	1.3	1.6	1.9	1.6	1.9
1986	0.9	1.1	1.7	1.7	1.7	1.8
1987	1.1	1.2	1.5	1.7	1.6	1.7
1988	1.1	1.2	1.6	1.8	1.6	2.0
1989	1.0	1.3	1.7	2.0	1.7	2.1
			2-year colleges			
1976	1.2	1.3	1.3	1.6	1.3	1.7
1978	1.2	1.2	1.3	1.4	1.3	1.6
1979	1.2	1.1	1.4	1.4	1.2	1.7
1980	1.2	1.1	1.3	1.5	1.3	1.6
1981	1.2	1.2	1.3	1.4	1.3	1.5
1982	1.2	1.2	1.4	1.5	1.4	1.5
1983	1.2	1.2	1.3	1.5	1.3	1.6
1984	1.3	1.3	1.4	1.5	1.4	1.6
1985	1.1	1.2	1.3	1.5	1.3	1.6
1986	1.1	1.1	1.2	1.5	1.2	1.6
1987	1.2	1.2	1.2	1.3	1.2	1.5
1988	1.2	1.3	1.3	1.4	1.4	1.7
1989	1.3	1.3	1.5	1.6	1.5	1.9

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment...." various years; October Current Population Surveys.

Table 2:25-7 Standard errors for estimated percentages in text table for *Indicator 2:25*

Year	Total			Full-time			Part-time		
	16-21 years old	22-34 years old	35 yrs old and over	16-21 years old	22-34 years old	35 yrs old and over	16-21 years old	22-34 years old	35 yrs old and over
1976	0.7	0.7	0.4	0.7	0.7	0.3	1.2	1.4	1.2
1978	0.7	0.7	0.4	0.8	0.7	0.3	1.2	1.4	1.2
1979	0.7	0.7	0.4	0.8	0.7	0.3	1.1	1.3	1.2
1980	0.7	0.7	0.4	0.7	0.7	0.3	1.1	1.3	1.1
1981	0.7	0.7	0.4	0.7	0.7	0.3	1.1	1.3	1.1
1982	0.8	0.7	0.4	0.8	0.8	0.3	1.2	1.4	1.2
1983	0.8	0.7	0.4	0.8	0.8	0.3	1.1	1.4	1.2
1984	0.8	0.7	0.4	0.8	0.8	0.3	1.2	1.4	1.2
1985	0.7	0.7	0.4	0.8	0.8	0.3	1.1	1.4	1.2
1986	0.8	0.7	0.5	0.8	0.8	0.3	1.0	1.3	1.2
1987	0.7	0.7	0.5	0.8	0.8	0.3	1.1	1.3	1.1
1988	0.8	0.8	0.5	0.9	0.8	0.4	1.1	1.4	1.3
1989	0.8	0.8	0.5	0.9	0.8	0.4	1.2	1.5	1.4

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment...," various years; October Current Population Surveys.

Indicator 2:25

Table 2:25-8 Part-time attendence status of undergraduates 16-34 years old, by age and type of college: 1973–1989

Year	16- to 34-year-olds			16- to 24-year-olds			25- to 34-year-olds		
	Total	4-year	2-year	Total	4-year	2-year	Total	4-year	2-year
	Percent part time								
1973	19.7	12.4	38.8	12.3	7.6	26.7	61.2	49.4	75.2
1974	22.5	14.9	40.3	14.3	9.5	28.0	61.5	51.2	73.1
1975	22.3	14.2	38.8	14.1	8.0	28.5	59.8	51.7	63.5
1976	22.9	14.7	41.3	14.5	8.9	30.1	61.7	54.4	68.2
1977	24.9	15.2	45.3	15.5	8.4	34.1	63.6	55.2	71.9
1978	24.4	15.0	45.3	15.7	8.9	34.1	62.9	51.9	75.1
1979	24.9	16.7	44.4	15.7	9.2	33.8	65.8	60.6	72.4
1980	25.6	16.1	43.8	15.6	8.9	31.5	68.6	59.4	76.8
1981	25.6	16.5	41.9	15.4	8.5	31.5	76.4	57.6	70.7
1982	25.3	15.9	43.7	16.6	9.3	32.4	62.2	54.7	73.7
1983	25.3	15.7	44.1	15.8	8.8	32.2	61.6	51.8	71.7
1984	24.7	16.2	42.7	15.2	8.6	32.2	62.2	55.8	68.8
1985	24.8	15.4	44.5	14.9	7.7	32.6	54.6	55.0	71.3
1986	26.6	16.9	46.9	16.1	8.7	34.5	64.9	56.5	74.6
1987	27.6	18.0	47.0	17.7	9.9	36.1	67.0	60.1	75.0
1988	25.4	15.7	44.1	16.0	8.6	32.6	62.9	53.0	74.1
1989	25.5	16.1	45.9	15.0	8.0	33.0	66.0	57.4	76.1

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, "School Enrollment . . .," various years; October Current Population Survey, unpublished tabulations.

Table 2:25-9 Attendance status and level of college students 16 to 34 years old: 1967–1989

Year	Percent enrolled part time			Percent graduate students		
	Total	Undergraduate	Graduate	Total	Full-time	Part-time
1967	22.3	17.5	49.0	15.0	9.9	33.1
1968	21.2	17.0	47.8	13.9	9.2	31.2
1969	21.9	17.2	47.9	15.3	10.2	33.5
1970	22.3	17.0	51.3	15.4	9.6	35.5
1971	23.3	19.0	48.4	14.7	9.9	30.6
1972	24.1	18.8	51.8	15.9	10.1	34.2
1973	25.6	19.7	54.5	16.9	10.4	36.1
1974	28.1	22.5	55.6	16.9	10.4	33.5
1975	26.7	22.4	49.1	16.4	11.4	30.1
1976	27.9	22.9	52.7	16.9	11.1	31.9
1977	29.6	24.9	51.0	17.7	12.3	30.6
1978	29.1	24.4	51.8	17.1	11.6	30.4
1979	29.8	24.9	53.5	17.0	11.2	30.5
1980	29.8	25.6	50.8	16.6	11.7	28.4
1981	29.5	25.6	50.7	15.7	10.9	26.9
1982	29.2	25.3	48.6	16.6	12.0	27.6
1983	28.8	25.3	45.9	16.8	12.7	26.8
1984	28.0	24.7	44.6	16.6	12.8	26.4
1985	29.0	24.8	50.7	16.1	11.2	28.2
1986	29.2	26.6	43.8	15.4	12.2	23.1
1987	30.8	27.5	48.3	15.5	11.6	24.3
1988	28.9	25.3	50.0	14.6	10.3	25.2
1989	28.5	25.4	45.5	15.5	11.8	24.7

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment . . .," various years (based on the October supplement to the Current Population Survey); October Current Population Survey, unpublished tabulations.

Table 2:25-10 Standard errors for estimated percentages in table 2:25-8

Year	16- to 34-year-olds			16- to 24-year-olds			25- to 34-year-olds		
	Total	4-year	2-year	Total	4-year	2-year	Total	4-year	2-year
1973	0.7	0.7	1.6	0.6	0.6	1.7	2.1	3.0	2.9
1974	0.7	0.7	1.5	0.6	0.6	1.6	1.9	2.8	2.6
1975	0.7	0.7	1.4	0.6	0.6	1.5	1.7	2.6	2.5
1976	0.7	0.7	1.4	0.6	0.6	1.6	1.8	2.7	2.5
1977	0.7	0.7	1.4	0.6	0.6	1.6	1.7	2.5	2.3
1978	0.7	0.7	1.4	0.6	0.6	1.6	1.8	2.5	2.4
1979	0.7	0.7	1.4	0.6	0.6	1.6	1.7	2.4	2.5
1980	0.7	0.8	1.5	0.7	0.6	1.6	1.8	2.7	2.4
1981	0.7	0.7	1.4	0.6	0.6	1.5	1.5	2.4	2.5
1982	0.7	0.7	1.4	0.7	0.6	1.5	1.8	2.6	2.3
1983	0.7	0.7	1.4	0.7	0.6	1.6	1.7	2.5	2.3
1984	0.7	0.7	1.4	0.6	0.6	1.6	1.7	2.4	2.5
1985	0.7	0.7	1.4	0.6	0.6	1.6	1.7	2.4	2.4
1986	0.7	0.7	1.4	0.7	0.6	1.6	1.7	2.4	2.2
1987	0.7	0.7	1.4	0.7	0.6	1.6	1.7	2.4	2.3
1988	0.7	0.7	1.3	0.6	0.6	1.5	1.7	2.4	2.2
1989	0.7	0.7	1.4	0.6	0.6	1.6	1.6	2.3	2.2

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment . . . ," various years (based on the October supplement to the Current Population Survey); October Current Population Survey, unpublished tabulations.

Table 2:25-11 Standard errors for estimated percentages in table 2:25-9

Year	Percent enrolled part time			Percent graduate students		
	Total	Undergraduate	Graduate	Total	Full-time	Part-time
1967	0.7	0.7	2.3	0.6	0.6	1.8
1968	0.7	0.7	2.3	0.6	0.6	1.7
1969	0.7	0.7	2.1	0.6	0.6	1.7
1970	0.7	0.7	2.1	0.6	0.5	1.7
1971	0.7	0.7	2.0	0.6	0.5	1.5
1972	0.7	0.7	1.9	0.6	0.5	1.5
1973	0.7	0.7	1.9	0.6	0.6	1.5
1974	0.7	0.7	1.8	0.6	0.5	1.3
1975	0.6	0.7	1.8	0.5	0.5	1.3
1976	0.6	0.7	1.7	0.5	0.5	1.3
1977	0.6	0.7	1.7	0.5	0.5	1.2
1978	0.6	0.7	1.7	0.5	0.5	1.2
1979	0.6	0.7	1.7	0.5	0.5	1.2
1980	0.7	0.7	1.8	0.6	0.6	1.2
1981	0.7	0.7	1.9	0.5	0.5	1.2
1982	0.7	0.7	1.8	0.5	0.6	1.2
1983	0.7	0.7	1.8	0.5	0.6	1.2
1984	0.7	0.7	1.8	0.5	0.6	1.2
1985	0.7	0.7	1.8	0.5	0.5	1.2
1986	0.7	0.7	1.9	0.5	0.6	1.2
1987	0.7	0.7	1.8	0.5	0.6	1.1
1988	0.7	0.7	1.9	0.5	0.5	1.2
1989	0.7	0.7	1.8	0.5	0.6	1.2

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, P-20 Series, "School Enrollment . . .," various years (based on the October supplement to the Current Population Survey); October Current Population Survey, unpublished tabulations.

Indicator 2:26

Table 2:26-1 Percentage of general education revenue of institutions of higher education, by type and control of institution and source: Fiscal year 1987

(Percent from each source)

Source of revenue	Type of institution All	 4-year	 2-year
		All institutions	
Total	100.0	100.0	100.0
Tuition & fees	31.3	32.6	24.0
Government appropriations	40.6	36.4	65.3
Federal	2.0	2.2	0.7
State & local	38.6	34.2	64.6
Government grants & contracts	14.7	15.7	8.5
Federal	11.7	13.0	3.9
State & local	3.0	2.8	4.6
Private gifts, grants, contracts	7.3	8.3	1.3
Endowment income	2.9	3.3	0.3
Sales & services of educational activities	3.2	3.7	0.6
		Public institutions	
Total	100.0	100.0	100.0
Tuition & fees	18.7	18.7	18.5
Government appropriations	59.9	57.1	71.2
Federal	2.6	3.1	0.7
State & local	57.3	54.0	70.5
Government grants & contracts	13.3	14.4	9.0
Federal	10.2	11.7	4.1
State & local	3.1	2.7	4.8
Private gifts, grants, contracts	4.2	5.1	0.6
Endowment income	0.6	0.8	0.1
Sales & services of educational activities	3.2	3.9	0.6
		Private institutions	
Total	100.0	100.0	100.0
Tuition & fees	56.6	55.5	84.3
Government appropriations	2.1	2.2	1.3
Federal	0.8	0.8	0.4
State & local	1.3	1.4	0.9
Government grants & contracts	17.4	17.9	3.2
Federal	14.6	15.1	1.0
State & local	2.8	2.8	2.2
Private gifts, grants, contracts	13.3	13.5	8.9
Endowment income	7.4	7.6	1.6
Sales & services of educational activities	3.2	3.3	0.7

NOTE: See supplemental note 2:26 for information on the sources of revenue excluded from the totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, tables 291, 292, and 293; 1987 IPEDS Financial Statistics survey.

Table 2:26-2 Amount of general education revenue of institutions of higher education, by control of institution and source: Selected fiscal years 1976–1987

(Billions of 1990 dollars)

Source of revenue	1976	1978	1980	1982	1984	1986	1987
				All institutions			
Total	$71.9	$75.8	$75.2	$75.5	$81.3	$94.0	$95.9
Tuition & fees	19.1	20.5	20.0	21.8	25.2	27.6	30.1
Government appropriations	32.9	34.8	33.8	33.0	34.3	38.4	38.9
Federal	2.1	2.2	2.0	1.8	1.8	1.9	1.9
State & local	30.8	32.6	31.7	31.2	32.5	36.5	37.0
Government grants & contracts	12.2	12.2	12.7	11.4	11.2	15.9	14.1
Federal	10.6	10.5	11.0	9.7	9.4	13.6	11.2
State & local	1.7	1.6	1.7	1.7	1.8	2.3	2.9
Private gifts, grants, contracts	4.5	4.8	4.7	4.9	5.6	6.5	7.0
Endowment income	1.6	1.7	2.0	2.2	2.4	2.7	2.8
Sales & services of educational activities	1.5	1.8	2.1	2.2	2.5	2.8	3.1
				Public institutions			
Total	$50.8	$53.3	$52.4	$51.7	$55.1	$64.1	$63.8
Tuition & fees	8.1	8.6	8.1	8.8	10.4	11.3	11.9
Government appropriations	32.2	34.0	33.0	32.3	33.7	37.8	38.2
Federal	1.8	1.9	1.7	1.5	1.6	1.7	1.7
State & local	30.4	32.2	31.3	30.8	32.1	36.1	36.5
Government grants & contracts	7.7	7.6	7.9	7.0	6.9	10.2	8.5
Federal	6.6	6.4	6.7	5.8	5.6	8.6	6.5
State & local	1.1	1.2	1.2	1.2	1.2	1.6	2.0
Private gifts, grants, contracts	1.4	1.6	1.6	1.8	2.1	2.5	2.7
Endowment income	0.2	0.3	0.3	0.3	0.4	0.5	0.4
Sales & services of educational activities	1.0	1.2	1.4	1.5	1.6	1.9	2.1
				Private institutions			
Total	$21.2	$22.5	$22.8	$23.7	$26.2	$29.9	$32.1
Tuition & fees	11.0	11.9	11.8	13.0	14.8	16.3	18.1
Government appropriations	0.7	0.7	0.7	0.7	0.6	0.7	0.7
Federal	0.3	0.3	0.3	0.3	0.3	0.3	0.3
State & local	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Government grants & contracts	4.5	4.5	4.8	4.4	4.3	5.8	5.6
Federal	3.9	4.1	4.3	3.9	3.8	5.1	4.7
State & local	0.6	0.5	0.6	0.5	0.6	0.7	0.9
Private gifts, grants, contracts	3.0	3.2	3.1	3.2	3.6	3.9	4.3
Endowment income	1.4	1.5	1.7	1.9	2.0	2.2	2.4
Sales & services of educational activities	0.5	0.7	0.7	0.7	0.9	0.9	1.0

NOTE: The average consumer price index for the school year was used to convert expenditure figures to constant dollars. See supplemental note 2:26 for information on the sources of revenue excluded from the totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990,* Tables 291, 292, and 293; 1987 IPEDS Financial Statistics survey.

Supplemental note 2:26 Revenues of colleges and universities

General education revenue as used in this indicator excludes four categories of revenue received by many institutions:

- sales and services of auxiliary enterprises;
- sales and services of hospitals;
- independent operations (federally funded research and development centers);
- other sources.

In addition, the amount of funds reported for Pell Grants has been subtracted out of the tuition income figure.

Table 2:27-1 Index of expenditures in constant dollars per full-time-equivalent student at *public* institutions of higher education, by type of institution: Academic years ending 1977–1987

(1977=100)

Year	Total	Instruction	Administration[1]	Student services	Research	Libraries	Public service	Operation and maintenance of plant	Scholarships and fellowships	Mandatory transfers
					Public universities					
1977	100	100	100	100	100	100	100	100	100	100
1978	101	102	102	104	102	96	98	102	96	86
1979	104	104	105	105	108	95	105	106	91	87
1980	103	103	100	106	110	108	103	104	90	84
1981	102	100	101	104	109	93	104	102	89	83
1982	100	99	100	102	104	92	100	102	87	70
1983	100	99	100	102	104	93	99	103	87	70
1984	101	100	103	103	106	96	100	105	92	82
1985	105	103	111	106	111	96	104	106	94	76
1986	110	106	118	110	118	101	109	107	103	105
1987	112	109	120	113	121	97	108	102	107	111
					Other public 4-year institutions					
1977	100	100	100	100	100	100	100	100	100	100
1978	101	101	101	105	102	100	100	102	90	108
1979	104	102	107	112	112	100	104	105	86	105
1980	105	102	109	114	120	102	112	107	88	96
1981	104	100	107	111	118	103	112	107	84	97
1982	103	101	109	104	112	98	110	108	74	83
1983	101	99	105	103	108	94	107	106	76	85
1984	101	98	111	110	109	97	109	99	74	89
1985	106	102	117	114	117	99	121	107	72	85
1986	110	107	121	118	128	100	124	101	81	99
1987	109	105	123	116	134	90	136	98	86	89
					Public 2-year institutions					
1977	100	100	100	100	([2])	100	100	100	100	100
1978	101	100	108	98	([2])	101	106	102	76	100
1979	104	102	112	104	([2])	100	100	105	79	112
1980	102	100	107	105	([2])	93	113	107	81	91
1981	98	97	103	102	([2])	88	105	104	75	68
1982	97	97	102	102	([2])	94	92	106	68	58
1983	92	92	99	98	([2])	78	69	100	66	59
1984	93	92	102	97	([2])	79	79	101	64	56
1985	101	99	112	106	([2])	83	102	108	75	57
1986	104	102	119	112	([2])	86	103	111	78	58
1987	106	103	127	119	([2])	68	114	109	81	36

[1] Includes institutional and academic support less libraries.

[2] Not calculated; expenditure category constituted 2 percent or less of total expenditures.

NOTE: The Higher Education Price Index was used to convert expenditures figures to constant dollars.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, tables 34, 304, 305, 306; 1987 IPEDS Financial Statistics and Fall Enrollment surveys.

Table 2:27-2 Index of expenditures in constant dollars per full-time-equivalent student at *private, nonprofit* institutions of higher education, by type of institution: Academic years ending 1977–1987

(1977=100)

Year	Total	Instruction	Administration[1]	Student services	Research	Libraries	Public service	Operation and maintenance of plant	Scholarships and fellowships	Mandatory transfers
					Private universities					
1977	100	100	100	100	100	100	100	100	100	100
1978	99	99	100	100	98	100	93	99	102	104
1979	100	98	106	103	98	94	94	103	100	123
1980	101	101	108	102	99	90	105	103	99	121
1981	103	103	108	108	96	91	95	107	104	146
1982	102	104	106	111	91	90	92	110	102	111
1983	103	106	115	114	87	89	95	108	103	112
1984	109	111	126	121	92	100	97	113	118	120
1985	113	113	127	128	97	95	122	115	124	144
1986	118	117	133	136	103	99	125	116	132	144
1987	128	130	147	149	112	94	146	113	148	166
					Other private 4-year institutions					
1977	100	100	100	100	100	100	100	100	100	100
1978	100	100	101	102	95	100	91	101	98	98
1979	101	100	102	104	104	99	91	101	96	100
1980	102	100	104	107	107	96	92	105	101	104
1981	103	99	106	110	103	95	99	106	104	101
1982	103	100	109	112	95	94	108	106	105	100
1983	106	103	112	117	93	99	106	105	107	100
1984	109	105	115	120	95	100	108	106	116	105
1985	112	106	119	125	101	101	113	106	124	108
1986	116	109	124	130	111	103	123	106	134	113
1987	122	112	137	137	118	90	137	106	148	117
					Private 2-year institutions					
1977	100	100	100	100	([2])	100	([2])	100	100	100
1978	95	94	98	100	([2])	96	([2])	93	93	83
1979	98	98	100	110	([2])	93	([2])	92	100	96
1970	97	96	101	106	([2])	91	([2])	90	107	95
1981	97	94	101	104	([2])	82	([2])	93	108	114
1982	94	92	102	103	([2])	78	([2])	86	94	92
1983	97	95	102	104	([2])	78	([2])	91	108	110
1984	97	92	104	107	([2])	77	([2])	93	115	85
1985	105	100	111	127	([2])	84	([2])	99	127	79
1986	106	102	112	131	([2])	84	([2])	99	128	70
1987	—	—	—	—	—	—	—	—	—	—

— Not available.

[1] Includes institutional and academic support less libraries.

[2] Not calculated; expenditure category constituted 2 percent or less of total expenditures.

NOTE: The Higher Education Price Index was used to convert expenditures figures to constant dollars.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, tables 34, 307, 308, 309; 1987 IPEDS Financial Statistics and Fall Enrollment surveys.

Table 2:27-3 Index of average undergraduate tuition charges in constant dollars at institutions of higher education, by type and control of institution: Academic years ending 1977–1987

(1977=100)

Year	Public institutions			Private institutions		
	University	Other 4-year	2-year	University	Other 4-year	2-year
1977	100	100	100	100	100	100
1978	100	99	101	100	100	100
1979	98	96	101	99	103	100
1980	96	93	99	99	102	103
1981	95	91	99	100	103	108
1982	98	94	100	104	107	106
1983	103	101	102	112	113	115
1984	108	108	108	118	117	113
1985	110	108	113	123	120	120
1986	117	108	119	127	126	121
1987	121	112	118	134	133	117

NOTE: Tuition charges (tuition and fees) are in constant dollars, adjusted by the Higher Education Price Index for the academic year (July 1–June 30). They are for the entire academic year and are average charges paid by students. They were calculated on the basis of full-time-equivalent undergraduates. Tuition at public institutions is the charge to in-state students. The amount at private institutions includes charges at both nonprofit and proprietary schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1990*, tables 34 and 281.

Indicator 2:28

Table 2:28-1 Percent of full-time students receiving financial aid, by source of aid, degree level, and type and control of institution: Fall 1986

Status	Any aid	Federal	State	Institutional	Other
Undergraduate students					
Total	60.4	46.6	20.6	22.8	7.7
Public	53.1	39.9	18.3	15.9	6.9
4-year	54.7	41.5	19.1	17.1	7.3
2-year	48.7	35.7	16.6	13.8	6.0
Less than 2-year	68.0	54.3	17.9	10.9	4.6
Private, nonprofit	74.2	55.5	30.7	49.4	11.3
4-year	74.2	55.3	30.6	50.6	11.6
2-year	75.3	57.6	32.2	35.8	8.2
Less than 2-year	70.0	62.3	26.9	5.9	7.5
Private, for-profit	86.4	82.0	11.4	5.3	4.0
2-year and above	85.9	82.2	19.1	5.3	3.6
Less than 2-year	86.6	81.9	6.6	5.3	4.2
Postbaccalaureate students					
Total	73.9	44.4	9.6	48.5	10.9
Master's	68.0	31.5	5.9	47.8	11.4
Public	67.6	30.1	6.1	48.6	8.7
Private	68.5	33.6	5.6	46.5	15.5
Doctor's	86.9	26.9	5.5	73.3	11.7
Public	89.3	28.6	7.1	75.1	11.4
Private	83.6	24.5	3.2	70.6	12.0
First-professional	75.2	65.1	15.2	39.3	10.0
Public	74.8	65.0	14.1	32.4	10.2
Private	75.4	65.2	15.7	42.9	9.9

NOTE: At the postbaccalaureate level, private institutions include nonprofit and for-profit institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Table 2:28-2 Percent of students receiving student financial aid, by attendance status, degree level, and type and control of institution: Fall 1986

Status	Total	Full-time	Part-time
Undergraduate students			
Total	48.6	60.4	29.1
Public	41.4	53.1	26.0
4-year	49.6	54.7	33.1
2-year	32.6	48.7	23.3
Less than 2-year	55.5	68.0	25.7
Private, nonprofit	68.1	74.2	45.4
4-year	68.1	74.2	44.3
2-year	68.8	75.3	55.0
Less than 2-year	67.6	70.0	51.5
Private, for-profit	85.0	86.4	77.7
2-year and above	83.3	85.9	65.4
Less than 2-year	85.9	86.6	82.9
Postgraduate students			
Total	58.0	73.9	39.2
Master's	48.4	68.0	36.5
Public	46.1	67.6	33.5
Private	52.2	68.5	41.6
Doctor's	73.8	86.9	53.3
Public	72.1	89.3	50.1
Private	76.9	83.6	61.6
First-professional	73.6	75.2	52.6
Public	72.4	74.8	48.4
Private	74.2	75.4	55.7

NOTE: At the postbaccalaureate level, private institutions include both nonprofit and for-profit institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Table 2:28-3 Number of students, by attendance status, degree level, and type and control of institution: Fall 1986

Status	Total	Full-time	Part-time
Undergraduate students			
Total	11,185,357	6,954,495	4,225,598
Public	8,557,781	4,853,555	3,699,644
4-year	4,248,299	3,250,362	996,976
2-year	4,180,263	1,511,808	2,665,191
Less than 2-year	129,219	91,385	37,477
Private, nonprofit	2,025,593	1,595,956	429,188
4-year	1,875,373	1,490,667	384,360
2-year	133,779	91,034	42,642
Less than 2-year	16,441	14,255	2,186
Private, for-profit	601,983	504,984	96,766
2-year and above	223,448	194,368	28,847
Less than 2-year	378,535	310,616	67,919
Postgraduate students			
Total	1,357,763	735,847	621,479
Master's	843,329	319,950	522,950
Public	519,788	192,433	327,088
Private	323,541	127,518	195,862
Doctor's	194,137	118,542	75,595
Public	124,252	69,787	54,465
Private	69,885	48,755	21,130
First-professional	320,297	297,355	22,934
Public	110,237	100,514	9,723
Private	210,061	196,841	13,211

NOTE: At the postbaccalaureate level, private institutions include both nonprofit and for-profit institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Table 2:28-4 Standard errors for estimated percentages in text table for *Indicator 2:28*

Status	Any aid	Federal	State	Institutional	Other
Undergraduate					
Total	0.7	0.7	0.6	0.8	0.3
Public	0.7	0.7	0.7	0.6	0.3
Private, nonprofit	0.9	1.2	1.3	1.4	0.7
Private, for-profit	1.4	1.8	1.7	0.8	1.1
Postbaccalaureate					
Total	1.0	3.0	1.5	1.3	0.6
Master's	1.7	1.3	0.6	2.1	1.0
Doctor's	1.6	2.6	1.2	1.9	1.7
First-professional	1.4	2.5	2.4	3.0	0.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Table 2:28-5 Standard errors for estimated percentages in table 2:28-1

Status	Any aid	Federal	State	Institutional	Other
Undergraduate students					
Total	0.7	0.7	0.6	0.8	0.3
Public	0.7	0.7	0.7	0.6	0.3
4-year	0.8	0.8	0.9	0.6	0.3
2-year	1.6	1.3	1.1	1.3	0.8
Less than 2-year	6.8	9.2	7.8	4.2	1.2
Private, nonprofit	0.9	1.2	1.3	1.4	0.7
4-year	1.0	1.3	1.4	1.4	0.7
2-year	3.6	4.2	3.4	4.2	1.7
Less than 2-year	12.7	11.7	10.3	1.6	3.6
Private, for-profit	1.4	1.8	1.7	0.8	1.1
2-year and above	2.3	2.6	3.4	1.1	0.8
Less than 2-year	1.8	2.2	1.9	1.1	1.8
Postbaccalaureate students					
Total	1.0	3.0	1.5	1.3	0.6
Master's	1.7	1.3	0.6	2.1	1.0
Public	2.4	1.8	1.0	2.6	1.4
Private	1.5	1.8	0.6	2.5	1.3
Doctor's	1.6	2.6	1.2	1.9	1.7
Public	2.2	4.0	2.1	2.6	2.1
Private	2.2	3.1	1.0	3.0	2.2
First-professional	1.4	2.5	2.4	3.0	0.8
Public	2.6	2.3	3.1	2.0	1.1
Private	1.5	3.3	3.2	3.4	1.0

NOTE: At the postbaccalaureate level, private institutions include nonprofit and for-profit institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Table 2:28-6 Standard errors for estimated percentages in table 2:28-2

Status	Total	Full-time	Part-time
Undergraduate students			
Total	0.8	0.7	1.0
Public	0.9	0.7	1.0
4-year	0.7	0.8	1.1
2-year	1.6	1.6	1.2
Less than 2-year	7.9	6.8	5.5
Private, nonprofit	0.9	0.9	2.0
4-year	0.9	1.0	2.0
2-year	3.0	3.6	3.3
Less than 2-year	11.0	12.7	5.3
Private, for-profit	1.5	1.4	3.7
2-year and above	2.2	2.3	4.3
Less than 2-year	1.6	1.8	3.9
Postgraduate students			
Total	1.5	1.0	1.4
Master's	1.1	1.7	1.5
Public	1.3	2.4	1.9
Private	2.0	1.5	2.3
Doctor's	1.8	1.6	3.2
Public	2.3	2.2	3.6
Private	1.9	2.2	4.3
First-professional	1.6	1.4	5.5
Public	2.7	2.6	10.5
Private	1.6	1.5	6.5

NOTE: At the postbaccalaureate level, private institutions include both nonprofit and for-profit institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study, 1987.

Indicator 2:29

Table 2:29-1 Time allocation of full-time faculty, by type of institution: Fall 1987

Type of institution	Number	Percentage of time spent on: Total percent	Teaching	Research	Adminis-tration	Other
All*	489,164	100.0	55.7	16.1	14.7	13.5
Medical	50,433	100.0	26.5	27.0	15.7	30.8
Research	115,038	100.0	45.0	29.6	15.2	10.1
Doctoral	48,709	100.0	54.3	20.6	14.3	10.8
Comprehensive	125,639	100.0	62.8	10.4	14.8	11.9
Liberal arts	39,086	100.0	64.8	8.4	16.3	10.5
2-year	95,595	100.0	71.3	3.4	12.7	12.6

*Faculty in "other" institutions (3 percent of faculty) are included in the total but are not shown separately.

NOTE: Full-time faculty, as defined here, excludes those with acting, affiliate, adjunct, or visiting faculty status. All medical faculty, regardless of institutional affiliation, are classified under "Medical." See supplemental note 2:29 for definitions of time allocation and type of institution. Data may not add to total because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Indicator 2:29

Table 2:29-2 Standard errors for estimated percentages and means in text table for *Indicator 2:29*

Type of institution	Percent of time spent teaching	Percent of time spent on research	Mean classroom hours	Mean student contact hours	Student contact hours per classroom hour (mean)
All	0.7	0.6	0.2	7.7	1.0
Medical	1.8	2.6	0.5	32.4	3.1
Research	0.9	0.9	0.2	17.0	3.3
Doctoral	1.2	1.2	0.3	19.6	4.8
Comprehensive	0.8	0.5	0.2	9.8	0.9
Liberal arts	1.1	0.9	0.6	19.4	1.9
2-year	1.0	0.3	0.3	19.5	1.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Table 2:29-3 Standard errors of estimated percentages in table 2:29-1

Type of institution	Percentage of time spent on: Teaching	Research	Administration	Other
All*	0.7	0.6	0.3	0.4
Medical	1.8	2.6	1.7	1.8
Research	0.9	0.9	0.6	0.5
Doctoral	1.2	1.2	0.7	0.4
Comprehensive	0.8	0.5	0.5	0.5
Liberal arts	1.1	0.9	0.9	0.7
2-year	1.0	0.3	0.6	0.6

*Faculty in "other" institutions (3 percent of faculty) are included in the total but are not shown separately.

NOTE: Full-time faculty, as defined here, excludes those with acting, affiliate, adjunct, or visiting faculty status. All medical faculty, regardless of institutional affiliation, are classified under "Medical." See supplemental note 2:29 for definitions of time allocation and type of institution. Data may not add to total because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Supplemental note 2:29 Definitions

Type of higher education institution

Medical school: Institution classified by the Carnegie Foundation as a specialized medical school. For purposes of indicators 2:29 and 2:30, this category also includes faculty in other institutions whose field of teaching is medicine.

Research university: Institution which is among the 100 leading universities in Federal research funds. Each of these universities awards substantial numbers of doctorates across many fields.

Doctoral university: Institution that offers a full range of baccalaureate programs and Ph.D. degrees in at least three disciplines, but tends to be less focused on research and receives fewer federal research dollars than the research universities.

Comprehensive institution: Institution that offers liberal arts and professional programs. The master's degree is the highest degree offered.

Liberal arts institution: Smaller and generally more selective institution than comprehensive colleges and universities. Primarily offers bachelor's degrees, although some offer master's degrees.

Two-year institution: Institution that offers certificate or degree programs through the Associate of Arts level and, with few exceptions, offers no baccalaureate programs.

"Other" institution: Specialized institution that offers degrees ranging from the bachelor's to the doctorate, at least half of which are in a single specialized field. Includes schools of law, engineering, business, art, etc. but not medical schools.

Note: For purposes of this indicator, all medical faculty, regardless of institutional affiliation, are classified under "Medical school." These faculty are excluded from other types of institutions.

Time allocation

Survey respondents were asked to estimate the percentage of their total working hours spent on each of 13 activities. For this indicator, the 13 activities are collapsed into the six categories listed below.

Teaching: Teaching, advising, or supervising students; grading papers, preparing courses, developing new curricula, etc.

Research: Research, scholarship; preparing or reviewing articles or books; attending or preparing for professional meetings or conferences, etc.; seeking outside funding (including proposal writing).

Administration: Administrative activities (including paperwork; staff supervision; serving on in-house committees, such as the academic senate, etc.); working with student organizations or intramural athletics.

Community service: Paid or unpaid community or public service.

Professional development: Taking courses; pursuing an advanced degree; other professional development activities, such as practice or other activities to remain current in one's field.

Other work: Providing legal or medical services or psychological counseling to clients or patients; outside consulting or freelance work; working at self-owned business; other employment; giving performances or exhibitions in the fine or applied arts; speeches; any other activities.

Classroom and student contact hours

Classroom hours: The number of hours per week spent teaching, as reported by the faculty respondent.

Student contact hours: The sum over all classes of the number of hours per week spent teaching times the number of students for each class, as reported by the faculty respondent.

Student contact hours per classroom hour: Total student contact hours divided by the number of classroom hours per week calculated for each faculty member.

Indicator 2:30

Table 2:30-1 Receipt of earnings in addition to the basic faculty salary, mean basic faculty salary, and mean total earned income among full-time faculty in institutions of higher education, by type of institution and principal field of teaching: Fall 1987

Principal field of teaching and type of institution	Percent with earnings in addition to basic faculty salary	Mean basic faculty salary (BFS)	Mean total earned income (TEI)	BFS as a percent of TEI (mean)[*]
Principal field of teaching among faculty in 4-year institutions				
Humanities	76.1	$33,275	$37,491	89.9
Social sciences	82.6	38,732	47,847	86.8
Natural sciences	74.8	41,112	48,167	87.2
Computer sciences and engineering	83.7	43,414	55,173	82.1
Education	81.8	33,300	39,830	86.6
Business	87.4	38,910	52,560	80.4
Health sciences	74.3	55,936	74,949	83.8
Type of institution				
Total	78.2	$39,439	$48,701	85.9
4-year	78.4	41,485	51,524	86.1
Medical	74.0	64,580	89,883	81.5
Research	81.6	45,051	55,615	85.8
Doctoral	79.9	37,057	44,717	85.5
Comprehensive	78.4	34,779	41,041	87.4
Liberal arts	72.8	28,769	32,740	89.0
2-year	77.0	32,050	38,235	85.9

[*] The mean of other earnings divided by total earned income (TEI) calculated for each faculty member.

NOTE: Faculty with acting, affiliate, adjunct, or visiting faculty status are excluded. All medical faculty, regardless of institutional affiliation, are classifed under "Medical." See supplemental note 2:29 for definition of type of institution.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Table 2:30-2 Mean basic faculty salary and total earned income of full-time faculty who were recipients and nonrecipients of earnings in addition to the basic faculty salary, by type of institution and principal field of teaching: Fall 1987

Principal field of teaching and type of institution	Mean basic faculty salary (BFS) of: Nonrecipients	Mean basic faculty salary (BFS) of: Recipients	Mean total earned income (TEI) of recipients	Percent by which recipient mean TEI exceeds nonrecipient mean BFS
Principal field of teaching among faculty in 4-year institutions				
Humanities	$33,449	$33,220	$38,764	15.9
Social sciences	38,003	38,885	49,924	31.4
Natural sciences	38,561	41,973	51,419	33.3
Computer sciences and engineering	41,014	43,882	57,938	41.3
Education	30,860	33,843	41,827	35.5
Business	32,356	39,854	55,470	71.4
Health sciences	55,434	56,109	81,689	47.4
Type of institution				
Total	$38,811	$39,614	$51,463	32.6
4-year	40,728	41,694	54,507	33.8
Medical	64,348	64,661	98,846	53.6
Research	39,764	46,242	59,187	48.8
Doctoral	37,024	37,065	46,648	26.0
Comprehensive	35,418	34,602	42,597	20.3
Liberal arts	30,230	28,224	33,677	11.4
2-year	32,580	31,892	39,923	22.5

NOTE: Faculty with acting, affiliate, adjunct, or visiting faculty status are excluded. All medical faculty, regardless of institutional affiliation, are classifed under "Medical." See supplemental note 2:29 for definition of type of institution.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Table 2:30-3 Standard errors for estimated percentages and means in text table for *Indicator 2:30* and table 2:30-1

Principal field of teaching and type of institution	Percent with earnings in addition to basic faculty salary	Mean basic faculty salary (BFS)	Mean total earned income (TEI)	BFS as a percent of TEI (mean)*
Principal field of teaching among faculty in 4-year institutions				
Humanities	1.6	$ 502	$ 570	0.4
Social sciences	2.1	789	2,313	0.8
Natural sciences	2.2	840	1,078	0.8
Computer sciences and engineering	2.3	915	1,526	1.1
Education	2.1	601	868	0.8
Business	2.2	1,048	2,198	1.3
Health sciences	3.3	2,212	3,713	1.6
Type of institution				
Total	0.9	$ 649	$1,036	0.4
4-year	1.0	771	1,256	0.4
Medical	4.4	2,556	4,689	2.1
Research	1.5	762	1,541	0.6
Doctoral	2.0	1,027	1,198	0.6
Comprehensive	1.3	550	721	0.4
Liberal arts	2.9	853	1,060	1.1
2-year	1.9	550	676	0.8

* The mean of other earnings divided by total earned income (TEI) calculated for each faculty member.

NOTE: Faculty with acting, affiliate, adjunct, or visiting faculty status are excluded. All medical faculty, regardless of institutional affiliation, are classifed under "Medical." See supplemental note 2:29 for definition of type of institution.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Indicator 2:30

Table 2:30-4 Standard errors for estimated means and percentages in table 2:30-2

Principal field of teaching and type of institution	Mean basic faculty salary (BFS) of: Nonrecipients	Mean basic faculty salary (BFS) of: Recipients	Mean total earned income (TEI) of recipients	Percent by which recipient mean TEI exceeds nonrecipient mean BFS
Principal field of teaching among faculty in 4-year institutions				
Humanities	$ 800	$ 565	$ 647	3.1
Social sciences	1,486	881	2,755	8.3
Natural sciences	1,449	1,008	1,269	5.2
Computer sciences and engineering	1,705	1,057	1,716	6.1
Education	1,339	652	959	5.6
Business	2,592	1,146	2,456	12.4
Health sciences	3,639	2,456	4,259	10.6
Type of institution				
Total	953	709	1,206	4.0
4-year	1,158	830	1,445	4.7
Medical	4,516	2,888	5,030	5.2
Research	936	846	1,790	5.8
Doctoral	1,640	972	1,306	3.5
Comprehensive	871	564	854	5.8
Liberal arts	1,352	780	1,095	11.2
2-year	865	585	721	3.5

NOTE: Faculty with acting, affiliate, adjunct, or visiting faculty status are excluded. All medical faculty, regardless of institutional affiliation, are classifed under "Medical." See supplemental note 2:29 for definition of type of institution.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1988 National Survey of Postsecondary Faculty.

Table 2:30-5 Average full-time faculty salaries in constant 1989 dollars in institutions of higher education, by control and type of institution and academic rank: Selected academic years ending 1972–1988

Year	All institutions			Public institutions			Private institutions		
	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor
				All institutions					
1972	56,689	42,929	35,484	57,266	43,691	36,103	55,554	41,216	34,042
1973	56,967	43,276	35,724	57,747	44,250	36,484	55,437	41,114	33,980
1975	52,194	39,589	32,622	52,978	40,676	33,520	50,568	37,026	30,531
1976	51,831	39,030	32,016	52,610	40,114	32,889	50,272	36,494	30,069
1977	51,535	38,783	31,759	52,185	39,760	32,554	50,148	36,370	29,941
1978	51,014	38,539	31,522	51,745	39,548	32,387	49,402	35,969	29,509
1979	49,126	37,205	30,389	49,722	38,165	31,237	47,754	34,743	28,427
1980	46,488	35,128	28,600	47,139	36,094	29,453	44,978	32,719	26,697
1981	45,133	34,069	27,739	45,608	34,888	28,517	44,019	32,042	26,075
1982	45,308	34,210	27,866	45,506	34,906	28,602	44,832	32,461	26,311
1983	46,034	34,870	28,568	45,947	35,420	29,193	46,242	33,516	27,270
1985	47,770	35,993	29,651	47,503	36,487	30,236	48,416	34,813	28,446
1986	49,381	37,136	30,700	49,451	37,814	31,487	49,206	35,516	29,080
1988	51,630	38,665	31,945	51,685	39,502	32,764	51,555	36,923	30,119
				4-year institutions					
1972	57,079	42,958	35,452	57,766	43,723	36,080	55,778	41,365	34,137
1973	57,385	43,246	35,598	58,315	44,238	36,360	55,681	41,236	34,057
1975	52,561	39,461	32,390	53,506	40,566	33,282	50,752	37,142	30,623
1976	52,216	39,013	31,946	53,137	40,169	32,880	50,501	36,612	30,162
1977	51,816	38,770	31,709	52,574	39,829	32,571	50,287	36,444	30,011
1978	51,268	38,505	31,382	52,098	39,601	32,302	49,553	36,049	29,574
1979	49,414	37,211	30,283	50,121	38,267	31,189	47,888	34,828	28,505
1980	46,815	35,157	28,512	47,599	36,243	29,429	45,125	32,796	26,773
1981	45,518	34,143	27,689	46,144	35,073	28,534	44,158	32,121	26,147
1982	45,698	34,282	27,830	46,038	35,089	28,640	44,943	32,516	26,378
1983	46,486	34,989	28,568	46,523	35,634	29,257	46,406	33,611	27,354
1985	48,379	36,169	29,727	48,290	36,774	30,394	48,571	34,916	28,556
1986	50,006	37,315	30,767	50,288	38,136	31,661	49,372	35,617	29,193
1988	52,304	38,848	32,055	52,586	39,806	32,964	51,718	37,026	30,555

Table 2:30-5 Average full-time faculty salaries in constant 1989 dollars in institutions of higher education, by control and type of institution and academic rank: Selected academic years ending 1972–1988—Continued

Year	All institutions			Public institutions			Private institutions		
	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor
				2-year-Institutions					
1972	$45,619	$42,509	$35,825	$47,012	$43,357	$36,292	31,871	31,648	28,673
1973	49,494	43,641	36,871	50,724	44,336	37,285	31,759	32,887	29,493
1975	46,588	40,848	34,267	47,404	41,454	34,699	30,634	29,848	26,154
1976	45,321	39,199	32,548	46,430	39,738	32,939	28,428	28,920	25,429
1977	45,470	38,907	32,155	46,256	39,247	32,454	30,734	30,234	25,969
1978	46,321	38,860	32,521	47,135	39,193	32,795	28,703	29,275	25,256
1979	44,024	37,161	31,159	44,659	37,499	31,478	29,316	28,228	23,882
1980	41,105	34,867	29,259	41,735	35,164	29,575	27,108	26,499	22,246
1981	38,932	33,388	28,128	39,449	33,677	28,427	27,363	25,954	21,519
1982	39,434	33,571	28,143	39,791	33,760	28,412	28,915	27,169	21,980
1983	39,739	33,847	28,571	40,228	34,129	28,871	26,979	25,502	22,232
1985	40,264	34,497	29,060	40,632	34,781	29,416	28,343	25,694	22,165
1986	42,147	35,613	30,169	42,547	35,905	30,565	28,645	26,043	22,545
1988	42,976	37,123	31,024	43,289	37,212	31,299	29,406	26,571	23,493

NOTE: Salaries are for full-time instructional faculty on 9- or 10-month contracts. In 1987–88, data were imputed for total nonresponding institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS/HEGIS surveys of faculty salaries.

Indicator 2:30

Supplemental note 2:30 Definitions

Sources of Earned Income

Basic faculty salary: Income received from the academic institution as indicated by the faculty respondent under a category called "basic salary."

Other income from the academic institution: Income, including the estimated value of nonmonetary compensation (e.g., food, housing, car), received for administration, research, coaching, summer session teaching, or other activities not included in the basic salary.

Consulting income: Income received from sources other than the academic institution for legal or medical services, psychological counseling, outside consulting, freelance work, professional performances or exhibitions, speaking fees, or honoraria.

Other outside income: Income received from sources other than the academic institution, including other academic institutions, self-owned businesses (other than consulting), royalties, commissions, nonmonetary compensation from other sources, retirement income, grants or research income, or any other employment.

Total earned income: The sum of all of the above sources.

B. Sources of Data

General Information

The information presented in this report was obtained from many sources, including federal and state agencies, private research organizations, and professional associations. The data were collected using many research methods including surveys of a universe (such as all colleges) or of a sample, compilations of administrative records, and statistical projections. Users of *The Condition of Education* should take particular care when comparing data from different sources. Differences in procedures, timing, phrasing of questions, interviewer training, and so forth mean that the results from the different sources are not strictly comparable. Following the general discussion of data accuracy below, descriptions of the information sources and data collection methods are presented, grouped by sponsoring organization. More extensive documentation of one survey's procedures than of another's does not imply more problems with the data, only that more information is available.

Unless otherwise noted, all comparisons cited in the text were tested for significance using t-tests and are significant at the .05 level. However, when multiple comparisons are cited, a Bonferroni adjustment to the signifance level was made. When other tests were used, they are described in the supplemental note for the indicator.

The accuracy of any statistic is determined by the joint effects of "sampling" and "nonsampling" errors. Estimates based on a sample will differ somewhat from the figures that would have been obtained if a complete census had been taken using the same survey instruments, instructions, and procedures. In addition to such sampling errors, all surveys, both universe and sample, are subject to design, reporting, and processing errors and errors due to nonresponse. To the extent possible, these nonsampling errors are kept to a minimum by methods built into the survey procedures. In general, however, the effects of nonsampling errors are more difficult to gauge than those produced by sampling variability.

The estimated standard error of a statistic is a measure of the variation due to sampling and can be used to examine the precision obtained in a particular sample for normally distributed statistics. The sample estimate and an estimate of its standard error permit the construction of interval estimates with prescribed confidence that the interval includes the average result of all possible samples. If all possible samples were selected, each of these surveyed under essentially the same conditions, and an estimate and its standard error were calculated from each sample, then approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average value from all possible samples; 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average value of all possible samples; and 99 percent of all intervals from 2.5 standard errors below the estimate to 2.5 standard errors above the estimate would include the average value of all possible samples. These intervals are called 90 percent, 95 percent, and 99 percent confidence intervals, respectively.

To illustrate this further, consider table 2:1-4 for estimates of standard errors from Cenus Current Population Surveys. For an estimate of the percent of 1989 high school graduates enrolled in college in October of 1989 of 59.6 in table 2:1-2, the table shows a standard error of 1.5. Therefore, we can construct a 95 percent confidence interval from 56.6 to 62.6 (59.6 ± 2 x 1.5). If this procedure were followed for every possible sample, about 95 percent of the intervals would include the average for all possible samples.

Standard errors can help assess how valid a comparison between two estimates might be. The standard error of a difference between two sample estimates is approximately equal to the square root of the sum of the squared standard errors of the estimates. The standard error (se) of the difference between sample estimate "a" and sample estimate "b" (if "a" and "b" are approximately independent) is:

$$se_{a-b} = \sqrt{s_a^2 + s_b^2}$$

It should be noted that most of the standard errors presented in the indicators and in the original documents are approximations. That is, to derive estimates of standard errors that would be applicable to a wide variety of items and that could be prepared at a moderate cost, a number of approximations were required. As a result, most of the standard errors presented provide a general order of magnitude rather than the exact standard error for any specific item.

Both universe and sample surveys are subject to nonsampling errors. Nonsampling errors can arise in various ways: from respondents or interviewers interpreting questions differently, from respondents estimating the values that they provide, from partial or total nonresponse, from imputation or reweighting to adjust for nonresponse, from inability or unwillingness on the part of respondents to provide correct information, from recording and keying errors, or from overcoverage or undercoverage of the target universe.

Sampling and nonsampling error combine to yield total survey error. Since estimating the magnitude of nonsampling errors would require special experiments or access to independent data, these magnitudes are seldom available. In almost all situations, the sampling error represents an understatement of the total survey error, and thus an overstatement of the precision of the survey estimates.

To compensate for suspected nonrandom errors, adjustments of the sample estimates are often made. For example, adjustments are frequently made for nonresponse, both total and partial. An adjustment made for either type of nonresponse is often referred to as an imputation—for example, substitution of the "average" questionnaire response for the nonresponse. Imputations are usually made separately within various groups of sample members which have similar survey characteristics. Imputation for item nonresponse is often made by substituting for a missing item the response to that item of a respondent having characteristics that are similar to those of the nonrespondent.

1. Federal Agency Sources

Bureau of the Census
U.S. Department of Commerce

Current Population Survey

Current estimates of school enrollment and social and economic characteristics of students are based on data collected in the Census Bureau's monthly household survey of about 60,000 households, Current Population Survey (CPS). The CPS consists of 729 samples areas comprising 1,973 counties, independent cities, and minor civil divisions throughout the 50 states and the District of Columbia. The current sample was selected from 1980 census files and is periodically updated to reflect new housing construction.

The primary function of the monthly CPS is to collect data on labor force participation of the civilian noninstitutional population (it excludes military personnel and inmates of institutions). In October of each year questions on school enrollment by grade and other school characteristics are asked about each member of the household. A report on the educational attainment of the population is produced from data gathered in March of each year when supplemental questions on income are asked.

The estimation procedure employed for the monthly CPS data involves inflating weighted sample results to independent estimates for the total civilian noninstitutional population by age, sex, race, and Hispanic origin. These independent estimates are derived from statistics from decennial censuses of the population: statistics on births, deaths, and immigration and emigration: and statistics on the strength of the Armed Forces. Generalized standard error tables are provided in the *Current Population Reports*. The data are subject to both nonsampling and sampling errors.

Further information is available in the *Current Population Reports*, Series P-20, or by contacting:

Education and Social Stratification Branch
Population Division
Bureau of the Census
U.S. Department of Commerce
Washington, DC 20233

School Enrollment. Each October, the Current Population Survey (CPS) includes supplemental questions on the enrollment status of the population aged 3 years old and over. Annual reports documenting school enrollment of the population have been produced by the Bureau of the Census since 1946. The latest report is *Current Population Reports*, Series P-20, No. 443, "School Enrollment--Social and Economic Characteristics of Students: October 1988 and 1987." All sample surveys are subject to sampling and nonsampling error. The main sources of nonsampling error in the supplement are those inherent in any household survey. When a household respondent reports for all individuals in the household, is that person knowledgeable about the grade or level of school, type of school, or full-time status? In addition, some analysts believe social acceptability of response causes biased reporting, such as reluctance to report lack of a high school diploma; some dismiss it. Household-reported data may not be consistent with administrative data because definitions may not be the same. An additional source of variation in statistics reported may be a change in the survey universe over time. For example, a significantly larger proportion of young men were members of the Armed Forces in the late 1960s and early 1970s, than before or after and, therefore, were not in the CPS universe. That caused a short term increase in the enrollment *rate* of young men, which was greater than the increase in numbers of enrollees would indicate. Other events may similarly affect survey data. The user must be mindful of external events as well as the character of the population being measured when describing survey trends.

An advantage of household survey data over administrative data is the availability of demographic, social and economic data for the student and family, not available in administrative data. Beginning with data for October 1981, tabulations have been controlled to the 1980 census. Estimates for earlier years were controlled to earlier censuses.

Questions concerning the CPS school enrollment data may be directed to:

Education and Social Stratification Branch
Population Division
Bureau of the Census
U.S. Department of Commerce
Washington, DC 20233

Educational Attainment. Data on years of school completed are derived from two questions on the Current Population Survey (CPS) instrument. Biennial reports documenting educational attainment are produced by the Bureau of the Census using March CPS data. The latest report is *Current Population Reports*, Series P-20, No. 428 "Educational Attainment in the United States, March 1987 and 1986."

The usual constraints on use of household survey data apply. Reliability of response may depend on whether a proxy respondent was used, the recency and importance of the event, and the number and clarity of response categories. There is some evidence that years of school completed in the CPS may not measure completion of degrees as clearly as they once did. The number of persons who have completed 4 years of college has been increasing more rapidly than the number of bachelor's degrees added each year would suggest. While the number of years completed is not deteriorating in quality (that is, respondents are not exaggerating the number of years), more students than in the past are taking more than 4 academic years to complete a bachelor's degree. Also, although interviewers are instructed to count receiving a high school diploma by means of passing a GED exam as completion of the 12th grade, as the number of persons who have received a diploma in this way has increased the number counted appropriately may not have kept pace. The 1990 Census of Population will contain a question on highest degree received rather than relying solely on a years of school completed item.

Beginning with the data for March 1980, tabulations have been controlled to the 1980 census. Estimates for earlier years were controlled to earlier censuses.

Questions concerning the CPS educational attainment data may be directed to:

Education and Social Stratification Branch
Population Division
Bureau of the Census
U.S. Department of Commerce
Washington, DC 20233

Bureau of Labor Statistics
U.S. Department of Labor

Educational Attainment of Workers

These data are collected by the March supplement to the Current Population Survey (CPS) sponsored by the Bureau of Labor Statistics and conducted by the Bureau of the Census. Sampling and nonsampling errors associated with the CPS are discussed under that heading. For further information on employment and unemployment statistics contact:

Division of Labor Force Statistics
Bureau of Labor Statistics
441 G Street NW (Room 2486)
Washington, DC 20212

National Center for Education Statistics
U.S. Department of Education

Integrated Postsecondary Education Data System

The Integrated Postsecondary Education Data System (IPEDS) surveys all postsecondary institutions, including universities and colleges as well as institutions offering technical and vocational education beyond the high school level. This survey, which began in 1986, will both replace and supplement the previous one, the Higher Education General Information Survey (HEGIS). For a full description of the various programs contained in IPEDS, therefore, the reader is referred to a discussion of the various HEGIS programs outlined below. What follows in this section is a brief overview of the IPEDS program.

The IPEDS consists of several integrated components that obtain information on who provides postsecondary education (institutions), who participates in it and completes it (students), what programs are offered and what programs are completed, and the resources involved in the provision of institutionally based postsecondary education, both human resources and financial resources. Specifically, these components include: institutional characteristics including institutional activity; fall enrollment, including age and residence; fall enrollment in occupationally specific programs; completions; finance; staff; salaries of full-time instructional faculty; and academic libraries.

The higher education portion of this survey is a census of all education institutions. However, data from the other technical and vocational institutions are collected through a sample survey. Thus, some portions of the data will be subject to sampling and nonsampling errors, while some portions will be subject only to nonsampling errors. The tabulations on institutional characteristics developed for this edition of the *Condition* are based on lists of all institutions and are not subject to sampling errors.

Further information on IPEDS may be obtained from:

William Freund
Postsecondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5652

Higher Education General Information Survey

The "Higher Education General Information Survey" (HEGIS) was a coordinated effort administered by NCES which acquired and maintained statistical data on the characteristics and operations of institutions of higher education. Implemented in 1966, HEGIS was an annual universe survey of institutions listed in the latest NCES *Education Directory, Colleges and Universities*. It has since been replaced by the Integrated Postsecondary Education Data System (see above).

The information presented in this report drew on HEGIS surveys which solicited information concerning institutional characteristics, faculty salaries, finances, enrollment, and degrees. Since these surveys were distributed to all higher education institutions, the data presented were not subject to sampling error. However they were subject to nonsampling error, the sources of which varied with the survey instrument. Each survey is therefore discussed separately. Information concerning the nonsampling error of the enrollment and degrees surveys draws extensively on the "HEGIS Post-Survey Validation Study" conducted in 1979.

Institutional Characteristics of Colleges and Universities. This survey provided the basis for the universe of institutions presented in the *Education Directory, Colleges and Universities*, and it was used in all other HEGIS data collection activities. The universe comprised institutions that offer at least a 1-year program of college-level studies leading toward a degree and that met certain accreditation criteria. In the fall, institutions included in the *Directory* the previous year received a computer printout of their information to update. All institutions reported were certified as eligible to be listed by the Division of Eligibility and Agency Evaluation within the U.S. Department of Education.

Opening Fall Enrollment in Colleges and Universities. This survey was part of the HEGIS series since its development. The enrollment survey response rate was relatively high; the 1985 response rate was 92 percent. Major sources of nonsampling error for this survey were classification problems, the unavailability of needed data, interpretation of definitions, the survey due date, and operational errors. Of these, the classification of students appears to have been the main source of error. Institutions had problems in correctly classifying first-time freshmen, other first-time students, and unclassified students for both full-time and part-time categories. These problems occurred most often at 2-year institutions (both private and public) and private 4-year institutions. In 1977-78, the classification problem led to an estimated overcount of 11,000 full-time students and an undercount of 19,000 part-time students. Although the ratio of error to the grand total was quite small (less than 1 percent), the percentage of errors was as high as 5 percent for detailed student levels and even higher at certain disaggregated levels.

Beginning with fall 1986, the survey system was redesigned with the introduction of the Integrated Postsecondary Education Data System (IPEDS) (see above). The new survey system comprises all postsecondary institutions, but also maintains comparability with earlier surveys by allowing HEGIS institutions to be tabulated separately. The new system also provides for preliminary and revised data releases. This allows the Center flexibility to release early data sets while still maintaining a more accurate final data base.

Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty. This survey has been conducted for most years from 1966–67 to 1987–88. Although the survey form was changed a number of times during those years, only comparable data are presented in this report. The data were collected from the individual colleges and universities.

Until 1987, this survey differed from other HEGIS surveys in that imputations were not made for nonrespondents. Thus, there is greater possibility that the salary averages presented in this report may differ from the results of a complete enumeration of all colleges and universities. The response rate for the 1984-85 survey was 86.3 percent. The response rate for public colleges was substantially higher than the response rate for private colleges. It is probable that the public colleges' salary data were more accurate than the data for private colleges. Other sources of nonsampling error included computational errors and misclassification in reporting and processing. NCES checked individual colleges' data for internal and longitudinal consistency and contacted the colleges to check inconsistent data.

Earned Degrees Conferred. This survey was part of the HEGIS series throughout its existence. However, the degree classification taxonomy was revised in 1970-71 and 1982-83. Though information from survey years 1970-71 through 1981-82 is directly comparable, care must be taken if information before or after that period is included in any comparison. Degrees-conferred trend tables arranged by the 1982-83 classification were added to the *Condition* to provide consistent data from 1970-71 to 1983-84. Data in this edition on associate and other formal awards below the baccalaureate, by field of study, are not comparable with figures for earlier years. The nonresponse did not appear to be a significant source of nonsampling error for this survey. The return rate over the years was extremely high, with the response rate for the 1983-84 survey at 95 percent. Because of the high return rate, nonsampling error caused by imputation was also minimal.

The major sources of nonsampling error for this survey were differences between the HEGIS program taxonomy and taxonomies used by the colleges, classification of double majors and double degrees, operational problems, and survey timing. In the 1979 validation study, these sources of nonsampling error were found to contribute to an error rate of 0.3 percent overreporting of bachelor's degrees and 1.3 percent overreporting of master's degrees. The differences, however, varied greatly among fields. Over 50 percent of the fields selected for the validation study had no errors identified. Categories of fields that had large differences were business and management, education, engineering, letters, and psychology. It was also shown that differences in proportion to the published figures were less than 1 percent for most of the selected fields that had some errors. Exceptions to these were: master's and Ph.D. programs in labor and industrial relations (20 percent and 8 percent); bachelors's and master's programs in art education (3 percent and 4 percent); bachelor's and Ph.D. programs in business and commerce, and in distributive education (5 percent and 9 percent); master's programs in philosophy (8 percent); and Ph.D. programs in psychology (11 percent).

Beginning with the 1986–87 academic year, the IPEDS completions survey replaced the HEGIS *Earned Degrees Conferred* survey.

Financial Statistics of Institutions of Higher Education. This survey was part of the HEGIS series throughout its existence. A number of changes were made in the financial survey instruments in 1975. In 1982 another change was made to include Pell Grants in federal restricted grants and contracts revenues and restricted scholarships and fellowships expenditures. While these changes were significant, only comparable information on trends is presented in this report, except where noted. Finance tables for this publication have been adjusted by subtracting the Pell Grant amounts from the later data to maintain comparability with pre-1982 data.

Other possible sources of nonsampling error in the financial statistics were nonresponse, imputation, and misclassification. The response rate has been over 90 percent for most of the years reported. The response rate for the latest (fiscal year 1985) survey was 87.6 percent.

Two general methods of imputation were used. If the prior year's data were available for a nonresponding institution, these data were inflated using the Higher Education Price Index and adjusted according to changes in enrollments. If no previous year's data were available, current data were used from peer institutions selected for location (state or region), control, level, and enrollment size of institution.

For the most recent years reported, the imputation method did not include the adjustment for changes in enrollments, and new institutions which never reported to HEGIS surveys were not imputed. For the fiscal year 1985 survey, survey forms were mailed to 3,379 institutions. Reports were received from 2,959 institutions, and data for 370 institutions were estimated based on their fiscal year 1984 reports inflated by the Higher Education Price Index. The remaining 50 institutions were not imputed because they had never responded to HEGIS surveys. The imputed current-fund expenditures of the nonrespondents were generally less than 3 percent of the aggregate U.S. total.

To reduce reporting error, NCES used national standards for reporting finance statistics. These standards are contained in *Colleges and University Business Administration: Administrative Services (1974 Edition)*, published by the National Association of College and University Business Officers; *Audits of Colleges and Universities* (as amended August 31, 1974), by the American Institute of Certified Public Accountants; and *HEGIS Financial Reporting Guide (1980)*, by NCES. Wherever possible, definitions and formats in the survey form are consistent with those in these three accounting references.

Questions concerning the surveys used as data sources for this report or other questions concerning HEGIS can be directed to:

Postsecondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5652

National Postsecondary Student Aid Study

The National Center for Education Statistics conducted the National Postsecondary Student Aid Study (NPSAS) for the first time during the 1986-87 school year. This survey established the first comprehensive student financial aid data base. Data were gathered from 1,074 postsecondary institutions and approximately 60,000 students and 24,000 parents. These data provided information on the cost of postsecondary education, the distribution of financial aid, and characteristics of both aided and non-aided students and their families. The survey also provided data on the distribution of financial aid, the nature of aid packages, and a profile of both aided and non-aided students.

In response to the continuing need for these data, NCES conducted the second cycle of NPSAS for the 1989-90 school year. In addition to replicating the earlier study, the 1990 NPSAS contains enhancements to the 1987 methodology that will fully meet the data needs of the financial aid community and of policymakers.

The 1990 in-school sample involved about 70,000 students selected from registrar lists of enrollees at 1,200 postsecondary institutions. The sample will include both aided and non-aided students. Student information such as field of study, education level and attendance status (part-time or full-time) will be obtained from registrar records. Types and amounts of financial aid and family financial characteristics will be abstracted from school financial aid records. Also, approximately 26,000 parents of students will be sampled. Data concerning family composition and parent financial characteristics will be compiled. Followup data collections are expected at 2-year intervals. Students enrolled in postsecondary education for the first time in 1990 will serve as the base for the longitudinal component of NPSAS.

Further information about this survey may be obtained from:

Andrew G. Malizio
Postsecondary Education and Statistics Division
National Center for Educational Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5652

Survey of Recent College Graduates

NCES has conducted periodic surveys of persons, about 1 year after graduation, to collect information on college outcomes. The "Recent College Graduates" surveys have concentrated on those graduates entering the teaching profession. To obtain accurate results on this subgroup, graduates who are newly qualified to teach have been oversampled in each of the surveys. The survey involves a two-stage sampling procedure. First, a sample of institutions awarding bachelor's and master's degrees is selected and stratified by percentage of education graduates, control, and type of institution. Second, for each of the selected institutions, a sample of degree recipients is chosen. The response rates on the recent college graduates survey have tended to be low because of the great difficulty in tracing the students after graduation. Much more of the nonresponse can be attributed to invalid mailing addresses than to refusals to participate. Despite their shortcomings, the data are presented in this report because they provide valuable information not available elsewhere about college outcomes. Users should be cautious about drawing conclusions based on data from small samples. It is also likely that the data are somewhat biased since the more mobile students, such as graduate students, are the most difficult to track for the survey.

The 1976 survey of 1974-75 college graduates was the first and smallest of the series. The sample consisted of 209 schools, of which 200 (96 percent) responded. Of the 5,506 graduates in the sample, 4,350 responded, for a response rate of 79 percent.

The 1981 survey was somewhat larger, with a coverage of 301 institutions and 15,852 graduates. Responses were obtained from 286 institutions, for an institutional response rate of 95 percent, and from 9,312 graduates (716 others were determined to be out of scope), for a response rate of 62 percent.

The 1985 survey requested data from 18,738 graduates from 404 colleges. Responses were obtained from 13,200 students, for a response rate of 74 percent (885 were out of scope). The response rate for the colleges was 98 percent. The 1987 survey form was sent to 21,957 graduates. Responses were received from 16,878, for a response rate of 79.7 percent.

Further information on this survey may be obtained from:

Peter Stowe
Postsecondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5652

National Survey of Postsecondary Faculty (NSOPF-88)

The National Survey of Postsecondary Faculty is a comprehensive survey of higher education instructional faculty in the fall of 1987. It was the first such survey conducted since 1963. It gathered information regarding the backgrounds, responsibilities, workloads, salaries, benefits, and attitudes of both full- and part-time instructional faculty in 2- and 4-year institutions under both public and private control. In addition, information was gathered from institutional and department-level respondents on such issues as faculty composition, new hires, departures and recruitment, retention, and tenure policies.

There were three major components of the study: a survey of institutional-level respondents at a stratified random sample of 480 U.S. colleges and universities; a survey of a stratified random sample of 3,029 eligible department chairpersons (or their equivalent) within the participating 4-year institutions; and a survey of a stratified random sample of 11,013 eligible faculty members within the participating institutions. Response rates to the three surveys were 88 percent, 80 percent, and 76 percent, respectively.

The universe of institutions from which the sample was selected was all accredited nonproprietary U.S. postsecondary institutions that grant a 2-year (A.A.) or higher degree and whose accreditation at the higher education level is recognized by the U.S. Department of Education. This includes religious, medical, and other specialized postsecondary institutions as well as 2- and 4-year nonspecialized institutions. According to the 1987 Integrated Postsecondary Education Data System (IPEDS), this universe comprised 3,159 institutions. The universe does not include proprietary 2- and 4-year institutions or less than 2-year postsecondary institutions.

Further information about this survey may be obtained from:

Linda Zimbler
Postsecondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5652

High School and Beyond

High School and Beyond (HS&B) is a national longitudinal survey of 1980 high school sophomores and seniors. The base-year survey was a probability sample of 1,015 high schools with a target number of 36 sophomores and 36 seniors in each of the schools. A total of 58,270 students participated in the base-year survey. Substitutions were made for noncooperating schools—but not for students—in those strata where it was possible. Overall, 1,122 schools were selected in the original sample and 811 of these schools participated in the survey. An additional 204 schools were drawn in a replacement sample. Student refusals and student absences resulted in an 82 percent completion rate for the survey.

Several small groups in the population were oversampled to allow for special study of certain types of schools and students. Students completed questionnaires and took a battery of cognitive tests. In addition, a sample of parents of sophomores and seniors (about 3,600 for each cohort) was surveyed.

HS&B first followup activities took place in the spring of 1982. The sample design of the first followup survey called for the selection of approximately 30,000 people who were sophomores in 1980. The completion rate for sophomores eligible for on-campus survey administration was about 96 percent. About 89 percent of the students who left school between the base year and first followup surveys (dropouts, transfer students, and early graduates) completed the first followup sophomore questionnaire.

As part of the first followup survey of High School and Beyond, transcripts were requested in fall 1982 for an 18,152-member subsample of the sophomore cohort. Of the 15,941 transcripts actually obtained, 1,969 were excluded because the students had dropped out of school before graduation, 799 were excluded because they were incomplete, and 1,057 were excluded because the student graduated before 1982 or the transcript indicated neither a dropout status nor graduation. Thus 12,116 transcripts were used for the overall curriculum analysis presented in this publication. All courses in each transcript were assigned a six-digit code based on *A Classification of Secondary School Courses* (developed by Evaluation Technologies, Inc., under contract with NCES). Credits earned in each course were expressed in Carnegie units. (The Carnegie unit is a standard of measurement that represents one credit for the completion of a 1-year course. To receive credit for a course, the student must have received a passing grade—"pass," "D," or higher.) Students who transferred from public to private schools or from private to public schools between their sophomore and senior years were eliminated from public/private analyses.

In designing the senior cohort first followup survey, one of the goals was to reduce the size of the retained sample, while still keeping sufficient numbers of minorities to allow important policy analyses. A total of 11,227 (94 percent) of the 11,995 persons subsampled completed the questionnaire. Information was obtained about the respondents' school and employment experiences, family status, and attitudes and plans.

The sample for the second followup, which took place in spring 1984, consisted of about 12,000 members of the senior cohort and about 15,000 members of the sophomore cohort. The completion rate for the senior cohort was 91 percent, and the completion rate for the sophomore cohort was 92 percent.

HS&B third followup data collection activities were performed in spring 1986. Both the sophomore and senior cohort samples for this round of data collection were the same as those used for the second followup survey. The completion rates for the sophomore and senior cohort samples were 91 percent and 88 percent, respectively.

An NCES series of technical reports and data file user manuals provides additional information on the survey methodology.

Further information on the High School and Beyond survey may be obtained from:

Sources of Data

Paula Knepper
Postsecondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5653

National Longitudinal Study

The National Longitudinal Study (NLS) of the high school class of 1972 began with the collection of base-year survey data from a sample of about 19,000 high school seniors in spring of 1972. Five more followup surveys of these students were conducted in 1973, 1974, 1976, 1979, and 1986. The NLS was designed to provide the education community with information on the transitions of young adults from high school through postsecondary education and the workplace.

The sample design for the NLS is a stratified, two-stage probability sample of students from all schools, public and private, in the 50 states and the District of Columbia with a 12th-grade enrollment during the 1971–72 school year. During the first stage of sampling, about 1,070 schools were selected for participation in the base-year survey. As many as 18 students were selected at random from each of the sample schools. The sizes of the school and student samples were increased during the first followup survey. Beginning with the first followup and continuing through the fourth followup, about 1,300 schools participated in the survey, and slightly under 23,500 students were sampled. The response rates for each of the different rounds of data collection have been 80 percent or higher.

Sample retention rates across the survey years have been quite high. For example, of the individuals responding to the base-year questionnaire, the percentages who responded to the first, second, third, and fourth followup questionnaires were about 94, 93, 89, and 83 percent, respectively.

Further information may be obtained from:

Carl Schmitt
Postsecondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5652

National Science Foundation

Survey of Earned Doctorates

The Survey of Earned Doctorates (SED) has been conducted annually by the National Research Council, under contract, for the U.S. Department of Education, the National Endowment for the Humanities, the National Science Foundation, and other federal agencies since 1957. Information from the survey becomes part of the Doctorate Records File, which includes records for doctorates awarded since 1920 by regionally accredited universities and colleges. The universe consists of all recipients of doctoral degrees such as Ph.D. or D.Sc., but excludes the recipients of first-professional degrees such as the J.D. or M.D. Approximately 95 percent of the annual cohort of doctorate recipients have responded to the questionnaire which is distributed through the cooperation of the Graduate Deans. Partial data from public sources are added to the file for nonrespondents. The data for a given year include all doctorates awarded in the 12-month period ending on June 30 of that year.

Data for the SED are collected directly from individual doctorate recipients. In addition to the field and specialty of the degree, the recipient is asked to provide educational history, selected demographic data, and information on postgraduate work and study plans. The National Center for Education Statistics' "Survey of Earned Degrees," part of its Higher Education General Information Survey (HEGIS), collects data from institutions, not individuals. Therefore, the number of doctorates reported in SED differs slightly from HEGIS totals. Also, SED data are restricted to research doctorates.

The differences between the two data series have been generally consistent since 1960. The ratio of NCES/SED totals for all Ph.D.s has ranged from 1.01 to 1.06.

Further information on this survey can be obtained from Summary Report: *Doctorate Recipients from United States Universities*, various years, published by the National Research Council, or by contacting:

Office of Scientific and Engineering Personnel
National Research Council
2101 Constitution Avenue NW
Washington, DC 20418

Sources of Data

Survey of Doctorate Recipients

The Survey of Doctorate Recipients (SDR) is a biennial survey of individuals who have received doctorates in the humanities, sciences, and engineering over the past four decades. It has surveyed scientists, including social scientists and psychologists, and engineers since 1973 and humanists since 1977. It is conducted by the National Research Council with support from the National Science Foundation, the National Endowment for the Humanities, the National Institutes of Health, the Department of Agriculture, and the Department of Energy.

The population for the survey consists of individuals who have received doctorates during a 42-year period. To maintain the length of this timespan for each biennial survey, the two most recent graduating cohorts of Ph.D.s are added to the population, and the two oldest are eliminated. It is a longitudinal survey—that is, individual members of the survey panel are resurveyed every 2 years—and contains historical data on employment status, employment sector, primary work activity, academic rank, tenure status, salary, and other characteristics.

For a more detailed discussion of the history of the SDR, the sample, and other methodological issues, see: National Research Council, *Methodological Report of the 1987 Survey of Doctorate Recipients*, National Research Council, April 1989 (prepared by Mary Belisle).

For further information, contact:

Survey of Doctorate Recipients Project
Office of Scientific and Engineering Personnel
National Research Council
2101 Constitution Avenue NW (Room GR 412)
Washington, DC 20418

Scientific and Engineering Expenditures at Universities and Colleges Survey

The National Science Foundation's Survey of Scientific and Engineering Expenditures at Universities and Colleges orginated in 1954 and has been conducted annually since 1972. The population surveyed in most years has consisted of the 500 to 600 universities and colleges that grant a graduate science or engineering degree and/or annually perform at least $50,000 in separately budgeted research and development (R&D), defined as current fund expenditures designed to produce specific research outcomes and funded either by an external agency to an institution or separately budgeted by an internal institution unit. The institutions included in this survey population expend over 95 percent of the nation's academic R&D funds. In addition, approximately 17 university administered federally funded research and development centers (FFRDCs) that are engaged in basic or applied research, development, or management of R&D activities are surveyed.

Since 1984 this survey has been conducted as a sample survey consisting of two strata: a certainty stratum including all doctorate-granting institutions, all historically black colleges and universities with R&D, and all university administered FFRDCs; and a probability stratum including a random sample of all nondoctorate-granting institutions that perform significant levels of research and development.

Further information on this survey may be obtained from Guide to the National Science Foundation's Surveys of Academic Science and Engineering, December 1990, published by the National Science Foundation, or by contacting

Science and Engineering Activities Program
Division of Science Resources Studies
National Science Foundation, Room L-611
Washington, DC 20550

2. Private Research and Professional Associations

Graduate Record Examination Council

All students who have taken the Graduate Record Examinations (GRE) General Test were asked a series of background information questions. These responses and the test scores themselves form the basis for continuing GRE Program research. In addition, these data are compiled and included in an annual report. The 12th in the series is *A Summary of Data Collected From Graduate Record Examinations Test Takers During 1986–1987.*

The GRE cautions users of these data that "information in these reports is based solely on examinees who took the Graduate Record Examination (GRE) General Test and should not be interpreted as being representative of any other group. The report does not present data for all baccalaureate degree recipients, for all graduate school applicants, or for all first-time graduate school enrollees." Nevertheless, the test-taking group is a large subset (albeit a self-selected one) of each of these groups.

Further information on this and previous editions of the report may be obtained by contacting:

Office of the GRE Program Director
Educational Testing Service
Princeton, NJ 08541

Academic support: This category of college expenditures includes expenditures for support services that are an integral part of the institution's primary missions of instruction, research, or public service. Includes expenditures for libraries, galleries, audio/visual services, academic computing support, ancillary support, academic administration, personnel development, and course and curriculum development.

Appropriation (institutional revenues): An amount (other than a grant or contract) received from or made available to an institution through an act of a legislative body.

Associate degree: A degree granted for the successful completion of a sub-baccalaureate program of studies, usually requiring at least 2 years (or equivalent) of full-time college-level study. This includes degrees granted in a cooperative or work/study program.

Auxiliary enterprises: This category includes those essentially self-supporting operations which exist to furnish a service to students, faculty, or staff, and which charge a fee that is directly related to, although not necessarily equal to, the cost of the service. Examples are residence halls, food services, college stores, and intercollegiate athletics.

Baccalaureate degree: See Bachelor's degree.

Bachelor's degree: A degree granted for the successful completion of a baccalaureate program of studies, usually requiring at least 4 years (or equivalent) of full-time college-level study. This includes degrees granted in a cooperative or work/study program.

Cohort: A group of individuals who have a statistical factor in common, for example, year of birth.

College: A postsecondary school which offers general or liberal arts education, usually leading to an associate, bachelor's, master's, doctor's, or first-professional degree. Junior colleges and community colleges are included under this terminology.

Constant dollars: Dollar amounts that have been adjusted by means of price and cost indexes to eliminate inflationary factors and allow direct comparison across years.

Control of institutions: A classification of institutions of higher education by whether the institution is operated by publicly elected or appointed officials (public control) or by privately elected or appointed officials and derives its major source of funds from private sources (private control).

Consumer price index (CPI): This price index measures the average change in the cost of a fixed market basket of goods and services purchased by consumers.

Current dollars: Dollar amounts that have not been adjusted to compensate for inflation.

Current-fund expenditures (higher education): Money spent to meet current operating costs, including salaries, wages, utilities, student services, public services, research libraries, scholarships and fellowships, auxiliary enterprises, hospitals, and independent operations. Excludes loans, capital expenditures, and investments.

Current-fund revenues (higher education): Money received during the current fiscal year from revenue which can be used to pay obligations currently due, and surpluses reappropriated for the current fiscal year.

Dependent student: A student who under federal criteria is considered to be financially dependent on her or his parents or guardians. Most students are considered dependent until they are 24 years old.

Doctor's degree: An earned degree carrying the title of Doctor. The Doctor of Philosophy degree (Ph.D.) is the highest academic degree and requires mastery within a field of knowledge and demonstrated ability to perform scholarly research. Other doctorates are awarded for fulfilling specialized requirements in professional fields, such as education (Ed.D.) musical arts (D.M.A.), business administration (D.B.A.), and engineering (D.Eng. or D.E.S.). Many doctor's degrees in both academic and professional fields require an earned master's degree as a prerequisite. First-professional degrees, such as M.D. and D.D.S., are not included under this heading.

Educational attainment: The highest grade of regular school attended and completed.

Educational and general expenditures: The sum of current funds expenditures on instruction, research, public service, academic support, student services, institutional support, operation and maintenance of plant, and awards from restricted and unrestricted funds.

Enrollment: The total number of students registered in a given school unit at a given time, generally in the fall of a year.

Expected family contribution (EFC): The amount that a family is expected to pay toward meeting postsecondary costs of attendance (students and parents of dependent students are both expected to make contributions.) This amount is determined through an analysis of need (for example, the Congressional Methodology) and is based on taxable and nontaxable income and assets as well as family size, the number of family members attending postsecondary institutions, extraordinary medical expenses, and so forth. For dependent students, the EFC consists of both a parental contribution and a separately calculated student contribution. The minimum student contribution in 1988–89 was $700 for freshmen and $900 for other undergraduates.

Expenditures: Charges incurred, whether paid or unpaid, which are presumed to benefit the current fiscal year. For elementary/secondary schools, these include all charges for current outlays plus capital outlays and interest on school debt. For institutions of higher education, these include current outlays plus capital outlays. For government, these include charges net of recoveries and other correcting transactions other than for retirement of debt, investment in securities, extension of credit, or as agency transaction. Government expenditures include only external transactions, such as the provision of perquisites or other payments in kind. Aggregates for groups of governments exclude intergovernmental transactions among the governments.

Expenditures per pupil: Charges incurred for a particular period of time divided by a student unit of measure, such as fall enrollment or full-time-equivalent enrollment.

Federal aid: Student financial aid whose source is the federal government. This aid can either be provided by or administered by a federal agency. Federal agencies providing aid include the Department of Education, Department of Health and Human Services, Department of Defense, Veterans Administration, and the National Science Foundation. Federal aid can be in the form of grants, loans, and work-study aid.

First-professional degree: A degree that signifies both completion of the academic requirements for beginning practice in a given profession and a level of professional skill beyond that normally required for a bachelor's degree. This degree usually is based on a program requiring at least 2 academic years of work prior to entrance and a total of at least 6 academic years of work to complete the degree program, including both prior-required college work and the professional program itself. By NCES definition, first-professional degrees are awarded in the fields of dentistry

(D.D.S or D.M.D.), medicine (M.D.), optometry (O.D.), osteopathic medicine (D.O.), pharmacy (D.Phar.), podiatric medicine (D.P.M.), veterinary medicine (D.V.M.), chiropractic (D.C. or D.C.M.), law (J.D.), and theological professions (M.Div. or M.H.L.).

Fiscal year: The yearly accounting period for the federal government, which begins on October 1 and ends on the following September 30. The fiscal year is designated by the calendar year in which it ends; e.g., fiscal year 1988 begins on October 1, 1987, and ends on September 30, 1988. (From fiscal year 1844 to fiscal year 1976 the fiscal year began on July 1 and ended on the following June 30.)

Foreign student: See Nonresident alien.

Full-time-equivalent (FTE) enrollment: For institutions of higher education, enrollment of full-time students, plus the full-time equivalent of part-time students as reported by institutions. In the absence of an equivalent reported by an institution, the FTE enrollment is estimated by adding one-third of part-time enrollment to full-time enrollment.

Full-time instructional faculty: Those members of the instruction/research staff who are employed full-time as defined by the institution, including faculty with released time for research and faculty on sabbatical leave. Full-time counts exclude faculty who are employed to teach less than two semesters, three quarters, two trimesters, or two 4-month sessions; replacements for faculty on sabbatical leave or those on leave without pay; faculty for preclinical and clinical medicine; faculty who are donating their services; faculty who are members of military organizations and paid on a different pay scale from civilian employees; academic officers, whose primary duties are administrative; and graduate students who assist in the instruction of courses.

Full-time enrollment: The number of students enrolled in higher education courses with total credit load equal to at least 75 percent of the normal full-time course load.

Full-time worker: A worker who usually works 35 or more hours per week. In educational institutions, an employee whose position requires being on the job on school days throughout the school year at least the number of hours the schools are in session. For higher education, a member of an educational institution's staff who is employed full-time.

General educational development (GED) test: A test administered by the American Council on Education as the basis for awarding a high school equivalent certification.

Government appropriation: An amount (other than a grant or contract) received from or made available to an institution through an act of a legislative body.

Government grant or contract: Revenues from a government agency for a specific research project or other program.

Graduate enrollment: The number of students who hold the bachelor's or first-professional degree, or the equivalent, and who are working towards a master's or doctor's degree. First-professional students are counted separately. These enrollment data measure those students who are registered at a particular time during the fall. At some institutions, graduate enrollment also includes students who are in postbaccalaureate classes but not in degree programs.

Graduate record examination (GRE): Multiple-choice examinations administered by the Educational Testing Service and taken by applicants who are intending to attend certain graduate schools. Two generalized tests are offered, plus specialized tests in a variety of subjects areas. Ordinarily, a student will take only the specialized test that applies to the intended field of study.

Graduate student: A student who holds a bachelor's or first-professional degree, or equivalent, and is taking courses at the post-baccalaureate level. These students may or may not be enrolled in graduate programs.

Grant: Also known as scholarships, these are funds for postsecondary education that do not have to be repaid.

Gross domestic product (GDP): Gross national product less net property income from abroad. Both gross national product and gross domestic product aggregate only the incomes of residents of the Nation, corporate and individual, deriving directly from the current production of goods and services. However, gross national product also includes net property income from abroad. See also Gross national product.

Gross national product (GNP): A measure of the money value of the goods and services becoming available to the Nation from economic activity. GNP can be viewed in terms of expenditure categories which include purchases of goods and services by consumers and government, gross private domestic investment, and net exports of goods and services. The goods and services included are largely those bought for final use (excluding illegal transactions) in the market economy. A number of inclusions, however, represent imputed values, the most important of which is rental value of owner-occupied housing. GNP, in this broad context, measures the output attributable to the factors of production—labor and property—supplied by U.S. residents.

Higher education: Study beyond secondary school at an institution that offers programs terminating in an associate, baccalaureate, or higher degree.

Higher education institutions (general definition): Institutions providing education above the instructional level of the secondary schools, usually beginning with grade 13. Typically, these institutions include colleges, universities, graduate schools, professional schools, and other degree-granting institutions.

Independent operations: A group of self-supporting activities under control of a college or university. For purposes of financial surveys conducted by the National Center for Education Statistics, this category is composed principally of federally funded research and development centers (FFRDC).

Inflation: An upward movement in general price levels that results in a decline of purchasing power.

Institutional support: The category of higher education expenditures that includes day-to-day operational support for colleges, excluding expenditures for physical plant operations. Examples of institutional support include general administrative services, executive direction and planning, legal and fiscal operations, and community relations.

Instruction: That category including expenditures of the colleges, schools, departments, and other instructional divisions of higher education institutions, and expenditures for departmental research and public service which are not separately budgeted. Includes expenditures for both credit and noncredit activities. Excludes expenditures for academic administration where the primary function is administration (e.g., academic deans).

Labor force: Persons employed as civilians, unemployed, or in the armed services during the survey week. The "civilian labor force" comprises all civilians classified as employed or unemployed.

Loan: Borrowed money that must be repaid.

Mandatory transfer: A transfer of current funds that must be made in order to fulfill a binding legal obligation of the institution. Included under mandatory transfers are debt service provisions relating to academic and administrative buildings, including (1) amounts set aside for debt retirement and interest and (2) required provisions for renewal and replacement of buildings to the extent these are not financed from other funds.

Master's degree: A degree awarded for successful completion of a program generally requiring 1 or 2 years of full-time college-level study beyond the bachelor's degree. One type of master's degree including the Master of Arts degree, or M.A., and the Master of Science degree, or M.S., is awarded in the liberal arts and sciences for advanced scholarship in a subject field or discipline and demonstrated ability to perform scholarly research. A second type of master's degree is awarded for the completion of a professionally oriented program, for example, an M.Ed. in education, an M.B.A. in business administration, an M.F.A. in fine arts, an M.M. in music, an M.S.W. in social work, and an M.P.A. in public administration. A third type of master's degree is awarded in professional fields for study beyond the first-professional degree, for example, the Master of Laws (LL.M.) and Master of Science in various medical specializations.

Nonresident alien: A person who is not a citizen of the United States and who is in this country on a temporary basis and does not have the right to remain indefinitely.

Part-time enrollment: The number of students enrolled in higher education courses with a total credit load less than 75 percent of the normal full-time credit load.

Personal income: Current income received by persons from all sources minus their personal contributions for social insurance. Classified as "persons" are individuals (including owners of unincorporated firms), nonprofit institutions serving individuals, private trust funds, and private noninsured welfare funds. Personal income includes transfers (payments not resulting from current production) from government and business such as social security benefits, military pensions, etc., but excludes transfers among persons.

Postsecondary education: The provision of formal instructional programs with a curriculum designed primarily for students who have completed the requirements for a high school diploma or equivalent. This includes programs of an academic, vocational, and continuing professional education purpose, and excludes avocational and adult basic education programs.

Private school or institution: A school or institution which is controlled by an individual or agency other than a state, a subdivision of a state, or the federal government, which is usually supported primarily by other than public funds, and the operation of whose program rests with other than publicly elected or appointed officials.

Proprietary institution: An educational institution that is under private control but whose profits derive from revenues subject to taxation.

Racial/ethnic group: Classification indicating general racial or ethnic heritage based on self-identification, as in data collected by the Bureau of the Census or on observer identification, as in data collected by the Office for Civil Rights. These categories are in accordance with the Office of Management and Budget standard classification scheme presented below:

> **White**: A person having origins in any of the original peoples of Europe, North Africa, or the Middle East. Normally excludes persons of Hispanic origin except for tabulations produced by the Bureau of the Census, which are noted accordingly in this volume.
>
> **Black**: A person having origins in any of the black racial groups in Africa. Normally excludes persons of Hispanic origin except for tabulations produced by the Bureau of the Census, which are noted accordingly in this volume.
>
> **Hispanic**: A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
>
> **Asian or Pacific Islander**: A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes, for example, China, India, Japan, Korea, the Philippine Islands, and Samoa.
>
> **American Indian or Alaskan Native**: A person having origins in any of the original peoples of North America and maintaining cultural identification through tribal affiliation or community recognition.

Salary: The total amount regularly paid or stipulated to be paid to an individual, before deductions, for personal services rendered while on the payroll of a business or organization.

Scholarships and fellowships: This category of college expenditures applies only to money given in the form of outright grants and trainee stipends to individuals enrolled in formal coursework, either for credit or not. Aid to students in the form of tuition or fee remissions is included. College work-study funds are excluded and are reported under the program in which the student is working. In the tabulations in this volume, Pell Grants are not included in this expenditure category.

Scholastic Aptitude Test (SAT): An examination administered by the Educational Testing Service and used to predict the facility with which an individual will progress in learning college-level academic subjects.

Technical/professional fields: A group of occupationally oriented fields of study, other than engineering and computer science, which include agriculture and agricultural sciences, architecture, communications, health sciences, home economics, law, library and archival sciences, military sciences, parks and recreation, protective services, and public affairs.

Tuition and fees: A payment or charge for instruction or compensation for services, privileges, or the use of equipment, books, or other goods.

Type of higher education institutions:

4-year institution: An institution legally authorized to offer and offering at least a 4-year program of college-level studies wholly or principally creditable toward a baccalaureate degree. In some tables a further division between universities and other 4-year institutions is made. A "university" is a postsecondary institution which typically comprises one or more graduate professional schools. See also University.

2-year institution: An institution legally authorized to offer and offering at least a 2-year program of college-level studies which terminates in an associate degree or is principally creditable toward a baccalaureate degree.

Undergraduate students: Students registered at an institution of higher education who are working in a program leading to a baccalaureate degree or other formal award below the baccalaureate such as an associate degree.

University: An institution of higher education consisting of a liberal arts college, a diverse graduate program, and usually two or more professional schools or faculties and empowered to confer degrees in various fields of study.

Work-study: A generic term for programs designed to provide part-time employment as a source of funds to pay for postsecondary education as well as a federal program that is administered through postsecondary institutions.

Year-round, full-time worker: One who worked primarily at full-time civilian jobs for 50 weeks or more during the preceding calendar year.

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